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Kerrick James

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Myth:
You can't get shallow depth of field
with mirrorless cameras.

Image shot with the Olympus OM-D E-M1
with the M.Zuiko 40-150mm f4.0 PRO lens
by Olympus Trailblazer, Peter Baumgarten

Fact: See photo above.

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Outdoor Photographer

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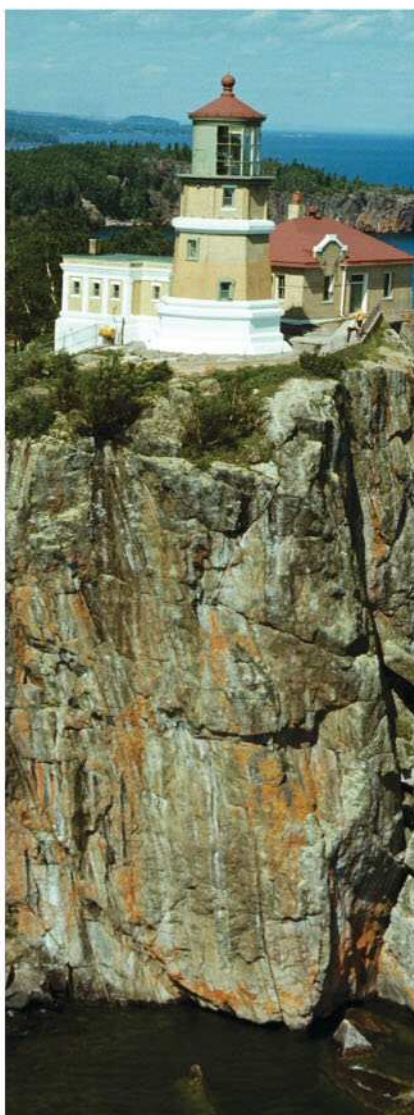
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PRINTED IN THE U.S.A.

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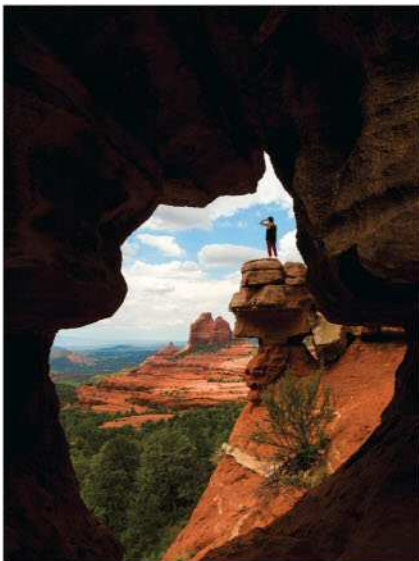
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Photographer: Kerrick James

Location: Sedona, Arizona

Equipment: Pentax K-30, smc PENTAX DA 12-24mm f/4 ED AL (IF)

Situation: Kerrick James is the quintessential explorer, seeking new vistas and new ways to photograph them. A lot of nature photographers travel alone. We all understand why, and we also understand that it's not really a good idea for simple safety reasons. James shows another reason why it's a good idea to bring along a companion. He explains, "I love to search for and discover new views and features in the landscape, and when I can show a hiking friend exploring it, so much the better. That was the case with this relatively small keyhole arch. It's viewable from Schnebly Hill Road in Sedona, but it's a scramble to reach, and it's a definite balancing act to shoot through without falling backward off the slickrock. A few spring clouds and a willing hiker to activate the scene, and I had the makings of an image worth sharing."

Many nature photographers work diligently to keep any evidence of human activity or influence out of the frame. Yet a photo like this shows how much a person adds to the image, how much more dynamic it becomes. Galen Rowell, who was a primary influence on the creation of *Outdoor Photographer*, understood how much a person in the frame could connect the viewer to the scene. He frequently used himself as a model, as his extraordinary stamina and drive made it almost impossible for anyone to keep up with him. Next time you find yourself waiting for people to clear out of your shot before pressing the shutter button, consider this cover image.




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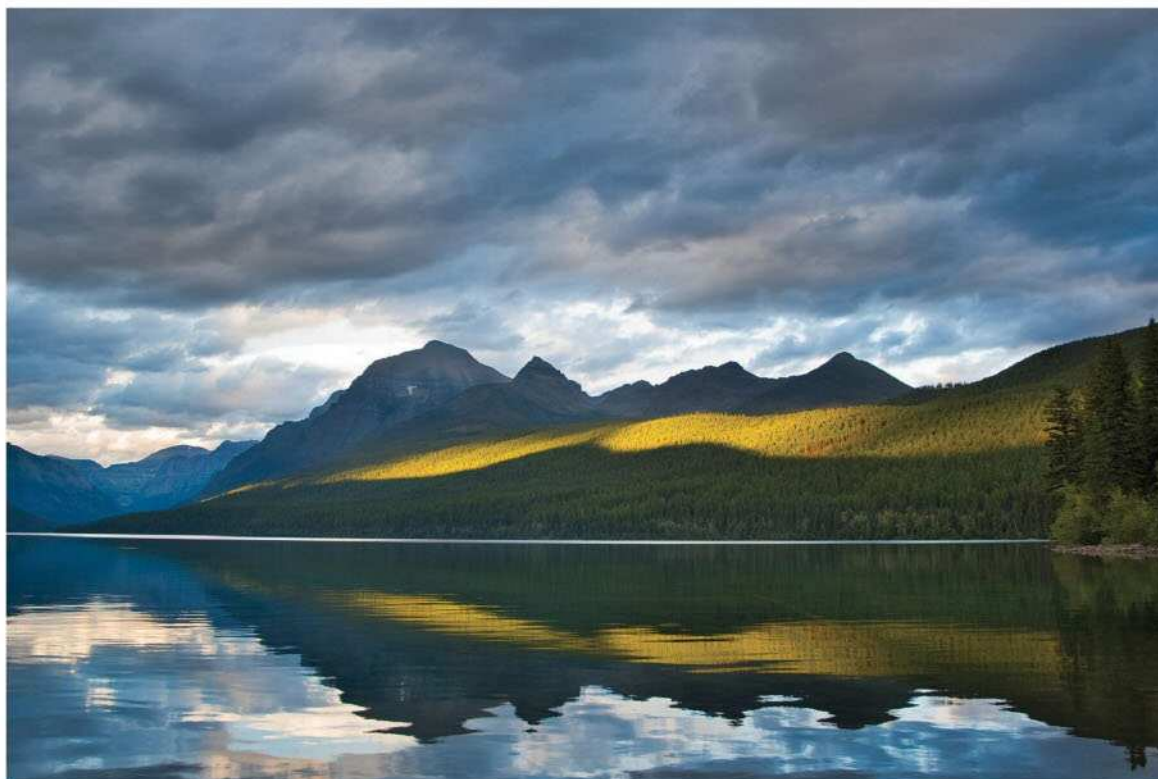
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Chuck Haney

[National parks] exist to preserve the most majestic places in this country for current and future generations to see and, really, you have to see them to believe them. As much as you might think you understand that the Grand Canyon is an incredible sight, the first time you actually walk to a vantage point in the park, you cannot help but gasp.

There's really no distinction in saying that, throughout my career, I've been profoundly moved by the vistas and environs of our national parks. There's no distinction in it because that's fundamentally why the parks were created. They exist to preserve the most majestic places in this country for current and future generations to see and, really, you have to see them to believe them. As much as you might think you understand that the Grand Canyon is an incredible sight, the first time you actually walk to a vantage point in the park, you cannot help but gasp.

For nature photographers, the national parks represent a limitless source of subjects for our lenses. When I said that in a seminar a few years ago, someone in the front row of the audience scoffed and blurted out, "They're too crowded for photography!" I know this is a common perception, and anyone who has tried to visit Yosemite in the summer can attest to the heavy traffic and packed scenic overlooks. In my seminar, I paused and said, "When was the last time you walked more than 100 yards from the parking lot?" The parks have been thoughtfully laid out so that most of the iconic attractions are easily accessible for anyone, meaning they can be seen with minimal effort from large, RV-friendly parking lots. But that's really just scratching the surface.

When I first went to Sequoia & Kings Canyon National Park, the line of cars at the

gate was about 30 minutes long. Then I followed that same long line of traffic for another half hour as I wound my way up into the main area of the park. When I finally got to the trail where I intended to hike that day, I spent about 15 minutes just looking for a parking spot in the packed lot. My hiking companion was looking at me suspiciously as I locked the car and we prepared to head up onto the trail. It was, predictably, pretty crowded—for about half a mile. After that, it felt like we had the place almost to ourselves. I asked a hiker who was coming down how things were higher on the trail and she said she hadn't seen anyone else all day.

In this issue, **we've put together a collection of pro tips to help you get the most from your experiences in the national parks.** We reached out to a number of photographers to get their input on the best places—some popular and some much less well known—to go in several of the most popular parks in the NPS system. The article looks at parks from the East and West, and in between. As you're planning your summer treks, use this guide to help you get the most out of your limited time. Also, go to outdoorphotographer.com and look at the recent National Parks Assignment, as well as the Your Favorite Places gallery to get more ideas and input from other *OP* readers. You can also engage with the community on our Facebook page, where there's always a lively conversation.

—Christopher Robinson, Publisher/Editor

SHOWCASE

Sequoia & Kings Canyon National Parks, California

David Shield went to Sequoia & Kings Canyon National Parks (known colloquially as SEKI) with a plan to avoid crowds. He writes, "Visitors have a chance to venture into remote backcountry areas less crowded than popular landmarks found near the parks' main roads." To get to this spot at Dusy Basin, he hiked from the Bishop Pass Trailhead, which was approached from by driving west on Highway 168 from Bishop.

Nikon D700, NIKKOR 18-35mm f/3.5-4.5G ED AF-S, polarizer

David Shield



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Glacier National Park, Montana

Visiting Glacier National Park, Luke Tingley was sure to bring his wide-angle lens for the sweeping grand landscapes. He describes this scene, "After a couple of days of very windy conditions at Two Medicine Lake, I was finally treated to a perfectly calm morning. Just before sunrise, Earth's shadow and the Belt of Venus put on a dazzling show of color, as Sinopah Mountain began to light up with alpenglow."

Canon EOS-1DS Mark III, Canon EF-24-70mm f/2.8L II,
Gitzo tripod

Luke Tingley



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SHOWCASE

Shenandoah National Park, Virginia

After spending the night photographing the Milky Way from the top of Skyline Drive in Shenandoah National Park, Andrew Rhodes took up a perch on the side of a mountain for sunrise. He writes, "An amazing scene unfolded in front of my weary eyes, with an entire palette of color laid out before me, between the green trees, purple mountains, yellow, orange and red sunrise, and blue sky. This will always be one of my favorite moments as a photographer."

Canon EOS 6D, Canon EF 24-70mm $f/2.8L$, Gitzo tripod, Really Right Stuff BH-55 ballhead

Andrew Rhodes



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◀ PENTAX K-3 II

Ricoh Imaging has introduced the **Pentax K-3 II** camera.

The K-3 II shares the K-3's dustproof and weather-resistant magnesium-alloy casing and metal chassis, as well as the 24.35-effective-megapixel resolution, 27-point AF system and 8.3 fps shooting speed. The K-3 II incorporates new GPS technology with a GPS receiver and an electric compass logging image location, camera orientation, altitude, time and date. Images then can be transferred to a map like Google Earth. Pixel Shift Resolution utilizes the improved 4.5 EV-stop Shake Reduction system to move the CMOS sensor in single-pixel increments over four frames, then combines the frames into a single high-definition image. Adding the in-body Shake Reduction system to the GPS technology, plus magnetic and acceleration sensors, the Astrotracer feature calculates the motion of stars and planets, allowing you to capture the stars as points of light instead of light

trails during long exposures. The K-3 II also includes a new high-speed AF algorithm, gyro-sensor panning detection and automatic horizon correction. List Price: \$1,099. **Contact:** Ricoh Imaging, www.us.ricoh-imaging.com.

EPSON SURECOLOR P800 ▶

Epson has delivered a 17-inch borderless professional printer with a compact design for desktop use. The **SureColor P800** uses Epson MicroPiezo AMC printhead technology and UltraChrome HD eight-color pigment ink for improved black density and print preservation for both color and black-and-white images. The SureColor P800 has a sheet feeder for photo and matte papers, as well as a front-in and front-out paper path for fine-art papers and posterboards. An optional 17-inch-wide Roll Paper Adapter is available for canvas or panorama prints. The printer supports connections for USB 2.0, Ethernet, wireless, WiFi Direct, Apple Air Print and Google Cloud Print. List Price: \$1,295 (SureColor P800); \$199 (optional Roll Paper Adapter); \$59 (UltraChrome HD 80 ml ink cartridge).

Contact: Epson, www.epson.com.



◀ ZEISS BATIS LENSES

Finding wide-angle- and tele-portrait-length lenses to be the most popular focal lengths so far for the Sony a7 camera family, **Zeiss** has now developed two full-frame autofocus lenses for the E-mount. The **Batis 2/25** and **Batis 1.8/85** support manual focus with a rubberized focus ring, while also offering fast, reliable and quiet autofocus utilizing an AF drive with linear motors. Zeiss has emphasized a modern lens body design with smooth surfaces and has now included an OLED display showing the focal plane distance and depth of field. The Batis 2/25 has 10 lens elements in 8 groups, similar to the Zeiss Distagon optical design. Aspherical elements ensure sharpness to the frame edges. The Batis 1.8/85 has 11 lens elements in 8 groups similar to the Zeiss Sonnar optical design and includes optical image stabilization for a sharp image in difficult light situations. List Price: \$1,299 (Batis 2/25); \$1,199 (Batis 1.8/85). **Contact:** Zeiss, www.zeiss.com/photo.



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PHOTO/VIDEO TRIPOD ►

Argraph has developed the **Sirui R-X Series Photo/Video tripod** for multimedia shooters looking to reduce their gear load. Each of the four tripods in the series comes with a 75mm bowl to replace the flat platform for desired video use and is compatible with the Sirui VH-10 and VH-15 video heads, as well as the Sirui K-40x professional ballhead and PH-20 gimbal head. The tripod itself has a reengineered spider using anodized, forged aircraft-grade components, increasing stability and load capacity, and includes a bubble level for horizontal alignment. Ten layers of carbon fiber have been used on the legs, increasing strength and vibration reduction while maintaining a lightweight, 6.2-pound total weight for the tallest 78.7-inch tripod. The Pull-Out Leg Angle Locking System allows for positioning at three different angles. Rubber feet can be replaced by stainless-steel spikes. List Price: \$870-\$1,171. **Contact:** Argraph, www.argraph.com.



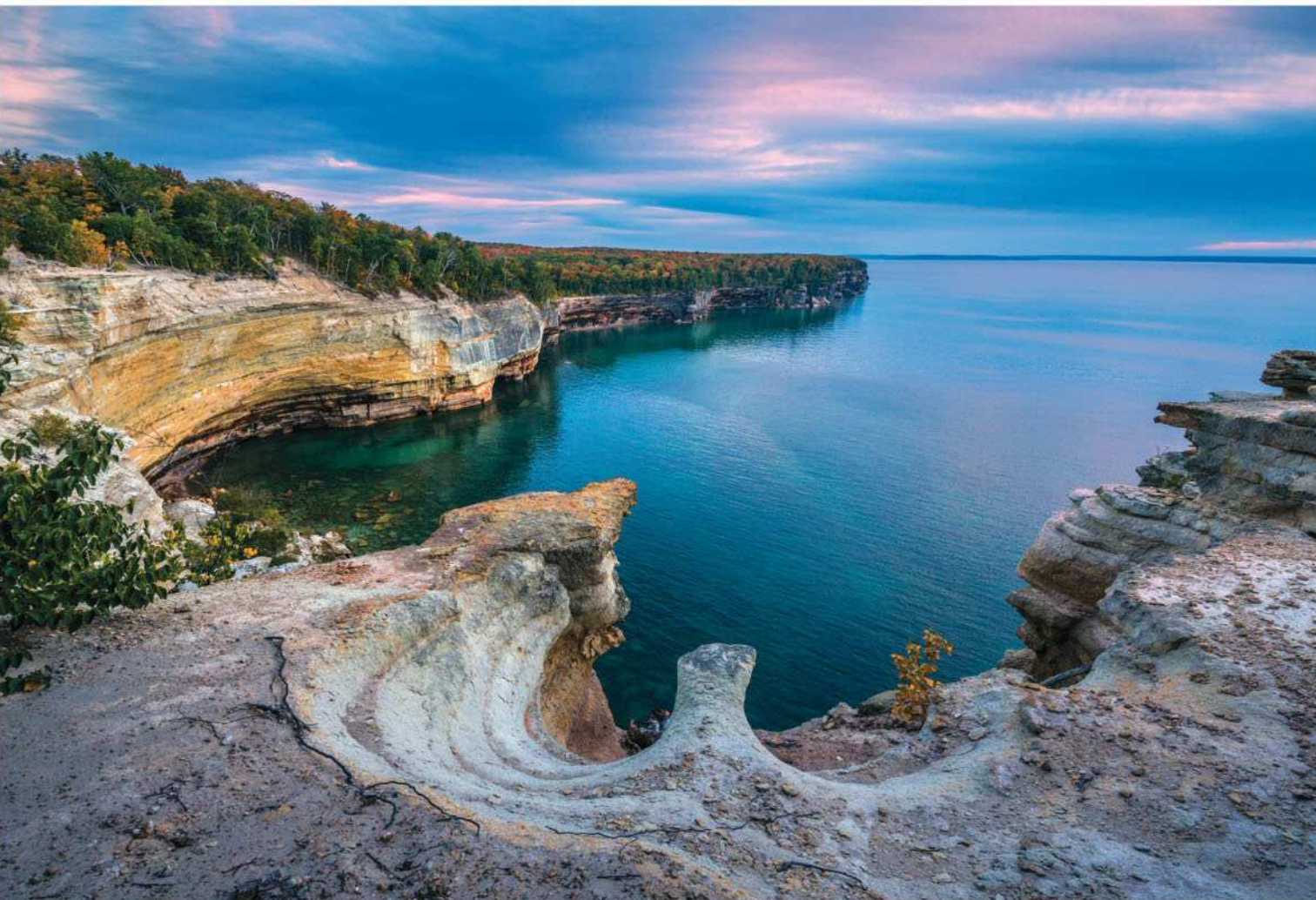
◀ DIGITAL DIRECTOR

Digital Director by **Manfrotto** is an Apple Certified interface for managing photo and video workflow by turning the iPad Air's high-definition Retina display into an external monitor and controller. This allows exposure, ISO, shutter speed, aperture, focus, white balance and image quality to be viewed and controlled via the app's Live View Mode. Digital Director shows a Dynamic Live Histogram and utilizes an interactive focus point, as well as displays Audio Levels for video use. It also provides the ability to download images directly to the iPad for quality check and instant photo editing. Downloaded images then can be shared via FTP, email or social-media networks. List Price: \$500. **Contact:** Manfrotto, www.manfrotto.us.

ON-CAMERA LED SERIES ►

Flashpoint has released a series of four travel-friendly on-camera LED lights. The **300 LED** utilizes 300-diode LEDs for a superbright output. Automatic light levels deliver balanced light while moving between natural sources. It includes on-board stereo condenser microphones located on the top of the lights to isolate the mics from camera operation sound. The **198 LED Bi-Color** provides a dial for adjusting color temperature from 3200K to 5600K. It's flicker-free, with no color shift when dimmed. Outdoors it's useful for brightening dark shadows. The **198 LED VariAngle** offers the ability to focus light from 25° to 60° and comes with two interchangeable color panels to control light from 3200K to 5600K. The smallest of the on-camera lights is the **Reporter Super Compact 150 LED**. It's about the size of a cell phone, with 900 lux output and a 60° light spread. List Price: \$79 each (300 LED and 198 LED Bi-Color); \$89 (198 LED VariAngle); \$49 (Reporter Super Compact 150 LED). **Contact:** Flashpoint (Adorama), www.adorama.com.





Focal length: 15mm Exposure: F/8 1/40 sec ISO400 © Ian Plant

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◀ COMFORTABLE HAND STRAP

Spider Holster has developed the universal **SpiderPro Hand Strap**. Slipping between the bottom of the camera body and a tripod plate, the strap can be used with any camera without the need of proprietary connectors. The strap utilizes an "S" shape that moves over and away from the knuckles and closer to the wrist, allowing the hand to be at a comfortable 45° shooting position while still providing clear access to the camera's battery door and memory card slot. The thin, yet durable materials form to the shape of each photographer's hand for added comfort. List Price: \$65. **Contact:** Spider Holster, spiderholster.com.

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[FAVORITE PLACES]

Text & Photography By Dave Allen



GREAT SMOKY MOUNTAINS North Carolina

Location

The Great Smoky Mountains are located in the heart of the southern Appalachians along the border between western North Carolina and eastern Tennessee. World famous for its scenic mountain ranges, diverse plant and animal species, and wide-ranging atmospheric conditions, the region is a target-rich environment for outdoor photographers and should be on any landscape or wildlife shooter's short list of locations to visit.

Weather

Weather in the mountains can be unpredictable, and a wide

variety of conditions are always possible. With elevations ranging from 875 to over 6,600 feet, altitude can have a large effect on the weather. It's possible to experience a high of 80° F in the valley and a low of 35° F in the mountains on the same day. Average temperatures range from highs in the 40s during the winter to highs in the 90s during the summer. Being in close proximity to the only temperate rain forest east of the Rocky Mountains means wet weather is fairly common, with annual rainfall ranging from 55 to 85 inches. I always make sure to bring adequate rain protection for both myself and my gear, and a warm jacket is useful in the mountains after sunset, even during the summer months.

Photo Experience

When shooting in the Great Smoky Mountains, it's neces-

sary to be prepared for the full range of photographic opportunities the area offers. Depending on your preference, you could find yourself shooting vast mountain ranges under dramatic skies, the region's numerous waterfalls and mountain streams or wildlife such as elk and black bears. With such a wide array of possible subjects, you'll find good use for lenses from both ends of the spectrum. I frequently find myself shooting a small waterfall with a 15mm ultrawide-angle lens and wildlife with a 300mm telephoto on the same day. If you're traveling light or planning to hike to more remote locations, a wide-angle zoom lens such as a 17-35mm and a telephoto zoom like a 70-200mm will give you the greatest flexibility in a reasonably small package. There are a few other items I

also find necessary for successful shoots in the area. With an abundance of waterfalls and mountain streams, a tripod is essential for the longer exposures, and a circular polarizer will be helpful in getting those rich, saturated colors in the water and lush foliage. If big mountain landscapes are your thing, you'll find a graduated ND filter useful for controlling exposures between the bright sunset skies and dark valley foregrounds.

Best Times

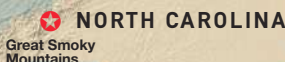
The Great Smoky Mountains and surrounding areas offer scenic opportunities in all seasons. From dogwoods blooming along scenic country lanes in the spring, to snow-covered mountain ridges under stunning sunsets in the winter, you'll find great things to shoot at anytime of the year. My favorite times in the southern Appalachians are in the spring during the explosion of flowering trees such as the dogwood and serviceberry, and during the fall color change when the mountains are painted in the vibrant red and yellow colors of autumn. **OP**

Contact: Great Smoky Mountains National Park, www.nps.gov/grsm. You can see more of Dave Allen's work at www.daveallenphotography.com.

Essential Gear...



In an area like the Great Smoky Mountains, a grad ND filter is invaluable. You can do wonders with a high-contrast image in the computer, but the closer your capture is to the final image, the better. The **LEE Filters Seven5 system** gives you the freedom of fully adjustable rectangular filters in a lightweight, portable system. **Contact:** LEE Filters, leefilters.com.



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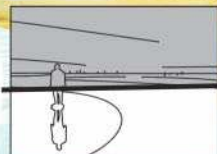


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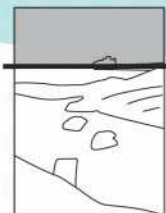
■ micro filter system

When presented with a sky as dramatic and colourful as this, you don't want to lose any of its impact when controlling the contrast. A 3-stop grad is ideal at sunrise or sunset to retain the natural colours in the sky, allowing you to capture the full drama witnessed.



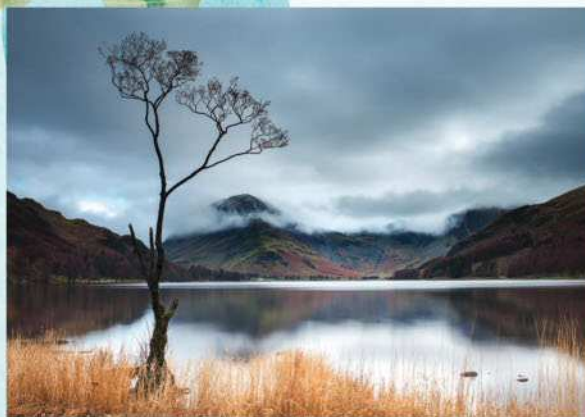
0.9 ND hard grad

Sometimes a long exposure doesn't need to extend into minutes to be effective and here, 10 seconds was enough for the desired effect. A Little Stopper allows you to achieve these exposure times, whilst an ND grad ensures the sky remains perfectly balanced too.

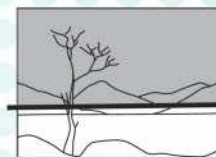


0.6 ND hard grad & Little Stopper

Where a subject breaks the horizon and overlaps the sky area of an image, there is only one filter for the job. A 3-stop soft grad enabled me to capture the menace of the rain-filled clouds, whilst producing a natural result unaffected by the dominant tree.



0.9 ND soft grad



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The position was breathtaking, and a little terrifying, as well. Aside from the kitchen sink, the only thing I hadn't thrown into my Subaru during my scramble to get to Crater Lake was a rope and a climbing harness—two items that would have lowered my blood pressure a few ticks under the current circumstances. My front tripod leg was scarcely two feet from where the ice dropped to the lake-shore 1,000 feet below; a week or so prior, a hapless tourist had taken the plunge when the ice cornice he had been standing on broke beneath his feet. I tried unsuccessfully to forget about this as I crept a few inches closer to the edge, and attempted to ward off the January chill.

I'd had a hunch that something special was about to happen in the park when I called the ranger from my home office in Portland that morning. An image of this location had been firmly seated in my mind's eye for several years, and I had waited patiently for the right set of conditions to present themselves. Sure enough, the ranger confirmed that a high-pressure system was pushing into the area after four days of wintry weather; skies were dramatic, and the fresh powder surrounding the crater was untrodden. Not about to forego such an opportunity, I piled my overnight gear, snowshoes and camera equipment into the back of my car and drove six hours on dicey roads to the park. Several hours of powder-tromping and exploration of the crater rim had brought me to the perfect crossroads of foreground, midground and background; upon setting up camp, all that remained was waiting out the frigid night and hoping the perfect light would present itself.

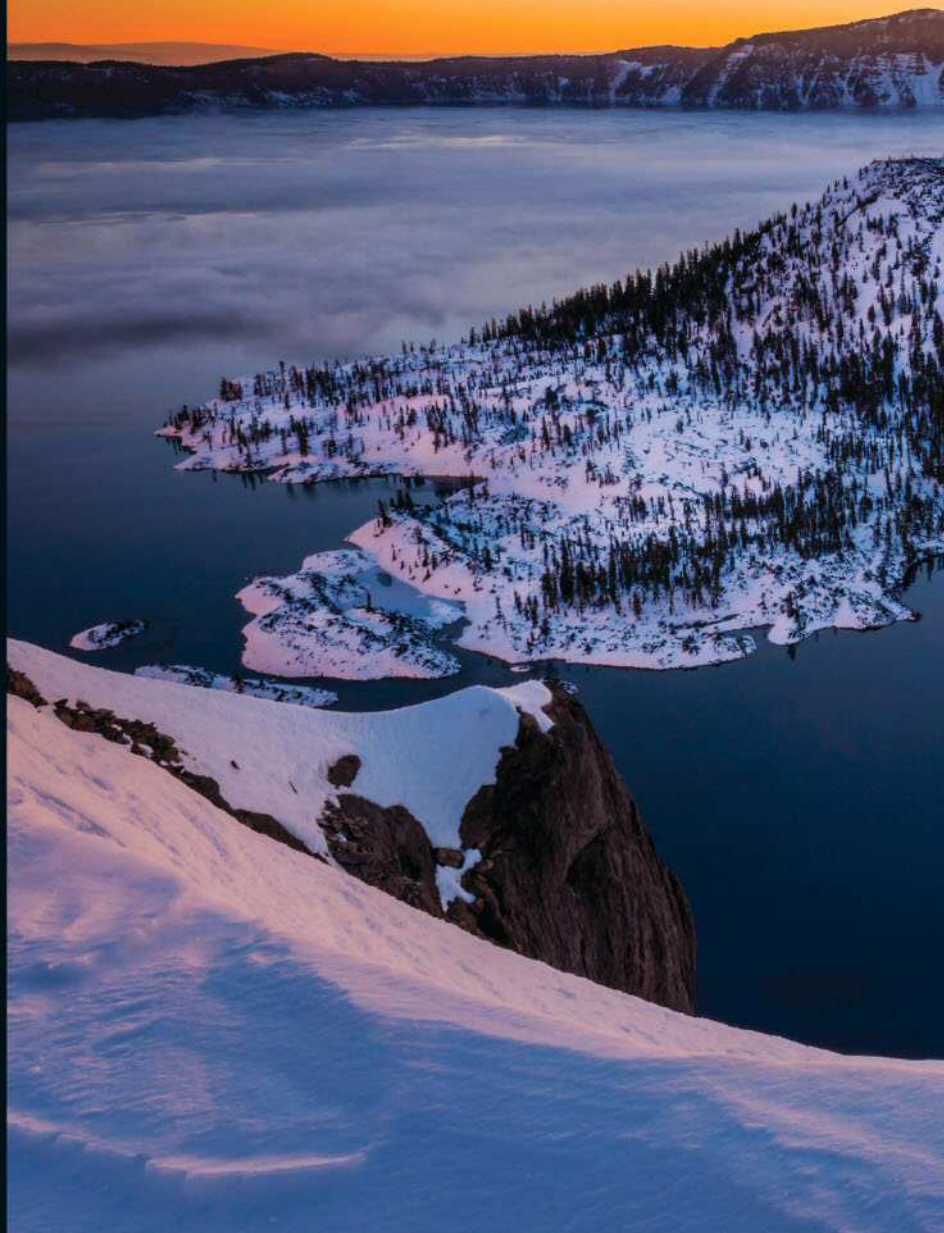
I had counted on the trailing end of the week's storm to yield dramatic skies, but as I unzipped my tent the following morning, I fretted my efforts were all for naught. A palpable calm had settled over the crater; there wasn't a cloud to be seen. It would be a lovely day for exploration, but a terrible day for photography. Nevertheless, remembering Wayne Gretzky's memorable quote, "You miss 100% of the shots you don't take," I shook off the morning cobwebs, brewed up a cup of coffee and positioned my tripod on the crater rim. The

vastness of the landscape before me was challenging to frame even with a 16mm lens, and I toyed with different compositions for the next half-hour. I made some nice images, but nothing remarkable.

That's when I noticed the tiny sliver of fire cresting the horizon in the right-hand side of my viewfinder. I knew the outing's efforts were about to be reduced to a single frame. With less than 30 seconds to act, I dove

First Rays

Crater Lake National Park, Oregon





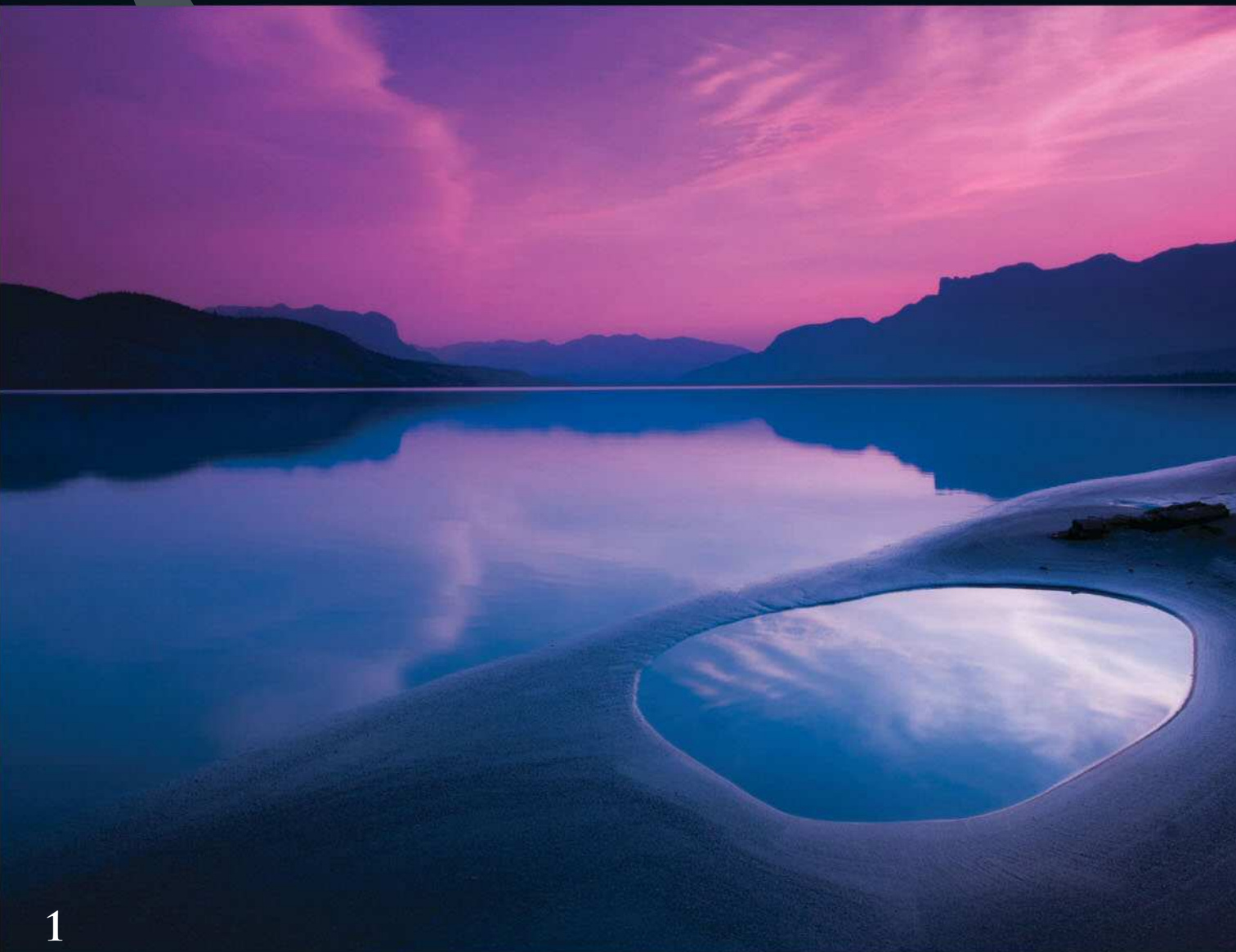
into my camera bag and blindly snatched a handful of split-ND filters. Stacking 5 stops' worth in front of my lens to rein in the background exposure, I stopped down to *f*/22, held my breath and fired away. **OP**

See more of **Scott Rubey's** work on his website at www.scottrubey.com. For the story behind Rubey's "Full Moon Over Wizard Island"

at Crater Lake National Park, visit the Behind the Shot section of the Outdoor Photographer blog at www.outdoorphotographer.com/blog/behind-the-shot.

ASSIGNMENTS

▶▶ Winning Images From The Weekly Assignments At outdoorphotographer.com



1

For this special National Parks issue, we're featuring some of the best submissions to our recent National Parks Assignment. The Assignments usually run for a week at outdoorphotographer.com. We let the National Parks Assignment go longer, and the best photos from the extended entry period are featured here. In addition to the OP website, you can keep up with the latest Assignments on our Facebook page, facebook.com/outdoorphotographer.

1) PHOTOGRAPHER: **Cale Best**

EQUIPMENT: Sony a77, Sigma 10-20mm *f*/4-5.6 EX DC HSM, Hoya CP, Cokin grad ND8
Last summer, I spent a week camping in Jasper National Park, Alberta, Canada, by myself. One evening, just as I was returning to my campsite from shooting the sunset, it began to rain and continued all night. So, instead of having a campfire and shooting the moonrise over the mountains like I had planned, I went to bed early and was able to get up at 4 a.m., and take the half-hour drive to Jasper Lake for sunrise. I didn't plan this specific photo before arriving, but I knew this lake would be very calm, especially for sunrise. I drove past it the day before at midday and it was completely still. It's also very shallow. I saw some people walking a few hundred feet out and the water was barely up to their knees. I spent nearly two hours here as the morning light continued to grow over the mountains. Every 20 minutes or so, a long train of boxcars would pass along the base of the mountains across the lake (left side of the photo). This was, by far, my best sunrise experience and one of my all-time favorite memories. The only major change I made to this photo in post was to cool the white balance quite a bit. I originally had a very warm white balance set, and it cast the entire shot in a heavy orange. Cooling down the colors really helped separate the sky from the foreground.



2) PHOTOGRAPHER: Gary Fua

EQUIPMENT: Canon EOS 5D Mark II, Manfrotto carbon-fiber tripod, Singh-Ray LB polarizer

The photo was taken at Inspiration Point, Anacapa Island, Channel Islands National Park, in Southern California, on April 11, 2015. My wife and our six-year-old daughter, along with two friends, booked an overnight camping trip. When we arrived at the island, we were greeted by the lone ranger of the park, and we realized we were too late for the wildflowers. The ranger said there was a heat wave, and the flowers were gone, so we pitched our tents and scouted the two-mile island during the afternoon. In the evening, I was hoping for a clear sky to get a milky shot, but then again, there was cloud cover. So, finally, in the morning, we headed to Inspiration Point and waited for the sun to caress the craggy islands with its golden warm light. I saw fog covering the other islands on the far end, but coming from the land of the fog (San Francisco), I know that when the sun rises, the fog will be lifted up, so I waited and waited until all things rolled up and the show began. For postprocessing, I used Lightroom and did a local adjustment for the shadows and highlights. Then, I used the GND filter to adjust the sky exposure.

3) PHOTOGRAPHER: Kristen M. Caldon

EQUIPMENT: Nikon D300, AF-S Zoom-Nikkor 17-35mm f/2.8D IF-ED

Myself and my model/assistant James Raymor were out in Death Valley for a week between Christmas and New Year's. The goal of the trip was to build on a portfolio I had been working on for a few years within this remote and desolate park. I camped nearby to set up and approach by first light. I had my shot list, separated into sunrise and sunset locations, and spent most of the midday traveling in between locations. We arrived at the Eureka Dunes in the afternoon, and I circumnavigated the three-mile field, searching for the best angles to capture the next day. It was windy, and very cold, and I wrapped my scarf around me to keep from getting pelted by the blowing sand. Not only are these dunes the tallest in California, but they're also known to "sing" in windy conditions. It's an eerie whistling resonance that seems to emit from deep inside the dunes, similar to wind moving through a burned forest, certainly a very interesting and unique soundscape, as well as a visually stunning landscape. The morning was freezing, still dark. I quickly grabbed my camera bag and some snacks, and headed up the dune before I could think about how cold it was. Timed near perfectly, just as we raised the crest of the tallest dune, Sand Mountain, the sun peeked over the Last Chance mountain range, lighting up James and his footprints along the ridgeline. I knew that was the shot the second I clicked the shutter.

On The Road Again

Adventure photographer Kerrick James, who travels nearly 200 days a year, takes a pit stop to share stories from the road

BY KRISTAN ASHWORTH | PHOTOGRAPHY BY KERRICK JAMES

The life of an adventure photographer isn't easy: There's seemingly endless travel to awe-inspiring destinations around the world; the physical demands of spending your days outside hiking, backpacking, climbing, kayaking and running rapids with all of your expensive gear in tow; seeking out sunrises, sunsets, rainbows, waterfalls and hidden caves; dragging your friends along on your adventures or meeting incredible new people along the way; and wildlife encounters most people will only dream of. Well, I guess it's not all bad. And for travel journalist Kerrick James, whose 25-year career has spanned film and digital, darkrooms and Lightroom, word of mouth and social sharing, it's just another day at the office.

When you grow up in a house that was “filled with cameras,” as James says he did, it's not unusual for the photography bug to bite. And when you live in some of the most well-known states for landscape photography, it's hard not to be inspired by the scenes surrounding you. Born in “the prairies of Kansas,” James' family moved to San Diego when he was young, and then settled in the San Francisco Bay area. James' sense of adventure often led him out of the city and to places such as the Sierra and Death Valley, and, he says, “as far away as I could get, and sometimes to places I wasn't supposed to go, and often by myself. I survived a few hair-raising experiences, and I got a little smarter along the way. And then I started to meet people who liked to do the same things.”

During his college years, James explored the Southwest—first New Mexico and then Arizona, where he graduated with a BFA in







OPENING SPREAD, LEFT, TOP TO BOTTOM: Starry night over Havasu Falls, Arizona; Arcing rainbow over The Mittens, Monument Valley, Arizona; Sunrise beams over Butch Cassidy's bathtub, Utah. **OPENING SPREAD, RIGHT:** Hikers above the Colorado River at Nankoweap, Arizona. **THIS PAGE, LEFT:** Lower Antelope Canyon, Page, Arizona. **BELOW:** Cascade Falls, Fiordland National Park, New Zealand. **RIGHT:** Rainbow Bridge, Utah.

Photography from Arizona State. James still hangs his hat in Arizona, that is, when he's not living out of a suitcase close to 200 days a year, traveling the world on assignment and teaching photography workshops.

James' work has appeared on over 200 book and magazine covers. He has photographed for hundreds of feature stories and has contributed to many books, guidebooks and Insight Guides, and has compiled an extensive stock photo library throughout his career. But it was the advice of a blunt magazine editor that helped shape James' photography early on in his career.

"I had an editor at a San Francisco-based magazine look at some of my earlier shots from the late '80s," James recalls, "and he said, 'These are great images, to a point.' I asked what point, and he said, 'It looks like a bleeping neutron bomb went off in all your pictures.' There were several 'bleeps' in it, actually. He was very colorful. But he was telling the truth. There were no people. I had always edited people out in my landscapes, even my cityscapes. He told me that people make things interesting if they're interesting people. I took his advice to heart and began to photograph the friends and guides that traveled with me to these great places, from Alaska to New Zealand or Australia, wherever it was, and I think those images are a lot more interesting because the



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viewer can imagine themselves as that person kayaking below a double arch in Lake Powell or going up a rickety ladder in a slot canyon. It becomes more experiential, more tangible.”

Another factor that sets James and his work apart is his ability to write, which he feels is a skill that would benefit many photographers working today due to how the business has changed over the years. “The job is about communication,” he explains. “There came a time when editors found out I wrote a bit, and they’d say, ‘Hey, we need a story,’ say, ‘on river rafting in the Grand Canyon, and we’re not going to send a writer, so we need you to do both.’ So, over the years, I’ve done at least a couple stories a year for

travel magazines. It’s essential, sometimes, to even getting the chance to shoot the story—you have to be able to write.”

James has had the opportunity to photograph, and write about, many incredible places over the years, but one of the most memorable is his image of a kayaker in a cave floating on emerald-green water. “That was taken in the desert,” James explains, “that’s in Black Canyon, the canyon that Hoover Dam is located in. In the mid-’90s, the Bureau of Reclamation, which has responsibility for Hoover Dam and controls that area, had it closed to recreation. Well, they opened it up to the public, and I discovered it around that time with a group of kayakers from down the river, and

ended up doing a story on it for *Arizona Highways* Magazine, which became a cover story that I think ran in 1997—it’s been awhile—and in the course of shooting the canyon, we discovered this little sea cave. For a short period in the afternoon, in midsummer to early autumn, the sun shines into the cave at an angle that just carries it over the cliff to the west. Because the sun is angled into the cave and reflects off of this light-colored lava rock, which is at the bottom of the cave, and the fact that the water is clear, it’s like a reflecting panel, the light bounces off up to the top of the cave so you have these dancing light patterns on the ceiling of the cave, and the water, it’s like you’re floating on an



ABOVE: *The Mittens, Monument Valley, Arizona.*

emerald. That cave was unnamed when I shot it, and I captioned it ‘Emerald Cave,’ and that’s the name that now applies to it. The name has stuck. It’s little discoveries like that, that keep me going out there, besides the fact that you get to meet the greatest people who love the planet just like you do. And if they know you love the planet and respect it, they’ll show you their favorite locations.”

James is well aware that some of the amazing locations he visits have already been well photographed, so he has to be prepared to get creative, like he did when he captured the shot of kayakers below Havasu Falls in the Grand Canyon: “A couple years ago, I took some friends down there. This wasn’t a working trip, this was for fun. I carried down an inflatable kayak and paddles, and then filled it up. My friends kayaking in Havasu—I’ve never seen pictures of that before or since, and it made for some hilarious questions from some bewildered backpackers.

‘Did you kayak up from the river?’ If you’ve ever been to Havasupai, you’d know that’s impossible. I finally told people that I was kayaking to Yuma, and that pretty much silenced them,” he recalls with a laugh. “To redefine or do new images of a place that has been photographed so much is a challenge I take to heart, and I think everybody should—what can you do different that’s safe and visual and pretty darn cool? Since I live in the desert, any chance to get in the water with a kayak and a camera I’ll take. Water means a lot more when there’s a lot less of it.”

These experiences also involved James lugging an assortment of gear, sometimes weighing upwards of 50 pounds. A Pentax shooter, James’ “big-camera experience” includes a 645Z medium-format DSLR with the 25mm lens and a number of 6x7 lenses he uses with an adapter. “That’s the great landscape camera,” he says. “But I’ll also carry a K-3 and a really wide zoom,

probably a mid-range, and then a longer zoom for people along the trail, expressions, that kind of thing.”

James’ gear has come a long way from the days of shooting Kodachrome and TRI-X like he did in the ’70s for personal work, but there are always pros and cons of each format. As he explains, “It’s a double-edged sword. I spend a tremendous amount of time editing the digital images and choosing which ones to really invest time in. But you can make them precisely fit your vision, and then it’s easier to market them.

“Just this morning, I processed an image of a coyote in the predawn gloom that I took at Death Valley when I was teaching a photo workshop,” he continues. “The coyote was scooting across the dunes at about 100 yards’ distance. I pointed it out to people; they could barely see it. I had a long telephoto zoom on, and I said, let me see if I can shoot this, so I had to raise the ISO to 25,600, and it made a recordable image, which is something you could never even dream of shooting in the days of film. So the array of circumstances in which you can record something is so much different with digital, and I love that. I mean, who doesn’t?”

James doesn’t specialize in wildlife photography, but it’s something that comes with the territory, so he likes to be prepared for any encounters. “I can’t do [wildlife photography] with my business model, and I’m probably not patient enough to do it. But I always gear up for wildlife when I know they can be part of the story, part of the experience. When the conditions are right and you’re close enough and you’ve got the optic, there’s nothing better than watching a wild creature do what they do.”

James’ wildlife encounters have included swimming with sea lions in the Sea of Cortez and desert bighorn sheep crossing his path in the Grand Canyon, but it was on one of his photo tours that an encounter became a little too close for comfort. “On a trail in Glacier National Park, one of my workshop participants got ahead of me, which they’re not supposed to. We rounded the bend and there he was, this guy from Brooklyn who had never been in the West, photographing two three-year-old male grizzlies feeding, pulling up roots from the ground, from about a 40-yard distance. He completely forgot everything I had told him and got away from me. I finally got him

back to where he was a little safer, but, yeah, your heart can be in your throat. It's pretty intense going places where the wildlife can eat you."

2015 is as busy as ever for James, whose calendar is filling up with more travel, workshops and adventures. "I just finished my Death Valley photo workshop for Arizona Highways, and I'm planning other photo workshops for later this year. I just confirmed a workshop called 'High in the Alps' that's going to be this summer in Switzerland, and it will involve hiking from mountain town to mountain town and hut to hut, but it's easy hiking, and you just carry your cameras, stop at mountain huts and have sausages and beer for lunch. It's a nice, easy, 30 to 40 miles in nine days, and the scenery is out of this world."

A natural-born teacher, James is incredibly approachable and encourages people to ask him questions, whether it's while on a workshop, at a trade show or even online, where people often reach out to him from around the globe. "I'm always happy to share," he says, "and I really encourage people to ask questions. During my workshops, I'm always listening, trying to find out what someone needs to learn, and if I can share it, then I'm absolutely thrilled to do that."

James says the best part of the workshops is the opportunity to return to the places that he loves because, he notes, "I don't think you should take people to a place you don't know really well. I love sharing prime locations, and hopefully in great light, and just watching people react to that light and the experience, and seeing their photography grow in the time of that workshop. People can really make a big jump in that time. If people have the skill and the dedication, they're going to improve and get closer to what they're after. So I love that. That's my reason for doing it." OP



See more of **Kerrick James'** photography at www.kerrickjames.com, and learn more about his upcoming workshops at www.kjphotosafaris.com.

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2015 American Land Winners

Congratulations to the winners of our premier competition showcasing the many faces of the American Landscape

Our fourth annual American Landscape contest was sponsored by Tamron, Mylio and BookBaby.

Thanks to their support, we were able to make this year's contest the best one yet. In the winning images, you'll see how landscape photographers are using modern cameras and lenses to push the envelope of what's possible in photography. Photos taken in difficult lighting conditions that would have been challenging without the use of special techniques and equipment are now doable by almost anyone with the vision and desire to try something new. We also can't help but notice how many of the submissions were in a horizontal format. It's a trend we've seen taking hold over the years, as computer screens have become a prominent element in image workflow.

Congratulations to the winners, whose images are shown on these pages. You can see all of the finalists at outdoorphotographer.com.



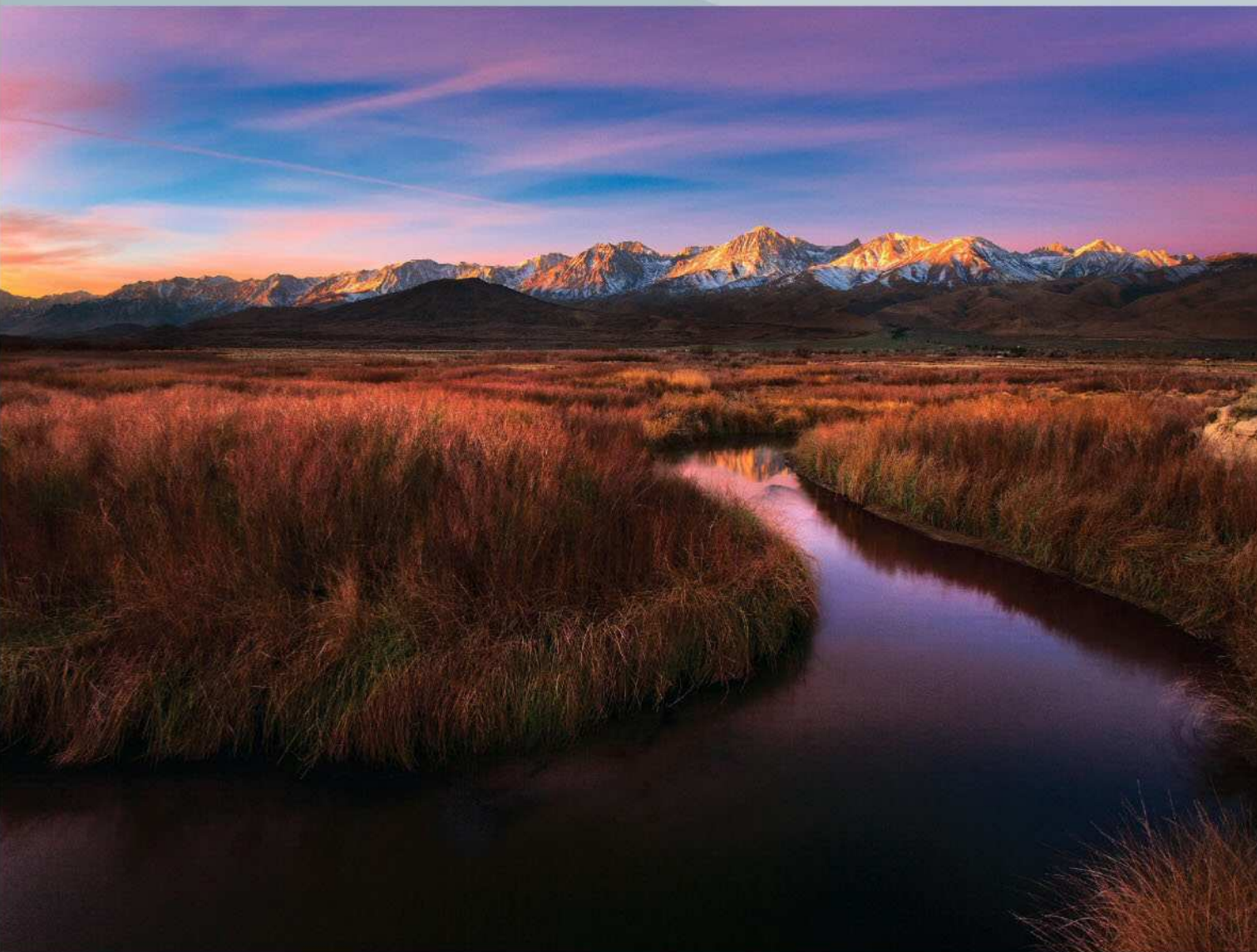
scape Contest



1st Place | Atchafalaya Autumn | **Photographer:** Ryan Pastorek

Inspired by the work of David Chauvin, I traveled back to my native Louisiana last fall to photograph the Atchafalaya Basin. On this particular morning, I woke up at 4 a.m., drove an hour to the shoreline, kayaked a few miles through rusty, old-growth cypress groves and finally arrived at my scouted location. I waded into the chest-deep water with my tripod to capture the morning's peace and tranquility. The clouds moved across the sky to obscure the rising sun just enough to cool and soften the image, and reveal the display of fall color, which was washed out just a few minutes before. I captured the moment and paddled home, exhausted, but elated.

2015 American Landscape Contest Winners



2nd Place | A New Day Begins | **Photographer:** Sherry Bell

This was my first time to eastern California. I had planned on one of those iconic shots of the Owens River with the Sierra Nevada Mountains in the distance. I arrived to a preselected spot a few miles into the middle of nowhere before sunrise. Still dark, I walked about a quarter of a mile along the river's edge until I found my spot for my sunrise shots. I had plenty of time and took many photos before sunrise, during and after. This photo won my eye because of the alpenglow on the mountaintops and the light just touching the tops of some of the tall grasses across the landscape. There was no wind, so I chose $f/22$ and 100 ISO to give myself a longer exposure to further smooth out the river's already slow and gentle movement toward the Sierra. One never knows what a sunrise will bring, but this one was perfect in so many ways. I really love the clouds and their soft colors in the sky, with those colors being reflected in the river giving a deeper intensity to the colors.

MORE On The Web

Enter our latest contests, peruse the Winners' Galleries of past contests and submit your photos to our weekly Assignments at outdoorphotographer.com.



3rd Place | The Tempest | **Photographer:** Terry Shapiro

On the way back from a trip to Wyoming, not too far into Colorado, the sky seemed to explode. The constant rumble and vivid colors from the lightning inside the storm, in combination with the sunset to my back, compelled me to pull over and take the photo. Storms tend to chase me; I don't chase them. This was one of those times when you just didn't want to stop and get out. But I knew if I didn't, I would be sorry later.



2015 American Landscape Contest Honorable Mention



Canyon Strike | **Photographer:** John W. Dodson, M.D.

The image was captured in August 2013. From time to time, I work in the Grand Canyon National Park Clinic during the busy summer tourist season. Fortunately, for me, this is also summer thunderstorm season. The beauty of this grand vista is the opportunity to watch storms as they traverse the canyon and are subjected to thermal effects generated by the canyon itself. This storm passed through quite late in the day just after sunset.



Playful | **Photographer:** Constance Mier

Living in Miami, I can easily access Biscayne Bay, where I paddle my canoe along the mangrove shoreline that's part of Biscayne National Park. Despite being so close to a metropolis, I'm almost always alone on the bay, and the peace I feel in this marine sanctuary is extraordinary. My goal as a photographer is to capture that feeling. On this particular morning, I launched my boat in the early-morning darkness and paddled to an area where small red mangrove trees appear in the shallow grassy flats of the bay. It's in this location where I totally forget the nearby city and view mangroves surrounded by infinite sky and water. I anchored my boat and stepped into the shallow water to set up the tripod. My sights were on a small single tree. The low tide revealed the grasses, offering an interesting texture to the foreground, while the clouds began forming various shapes in the background. I moved into a position where the lonely mangrove could be framed by the "playful" clouds and the reflections in the water.



Night Lights | **Photographer:** Jonathan Tucker

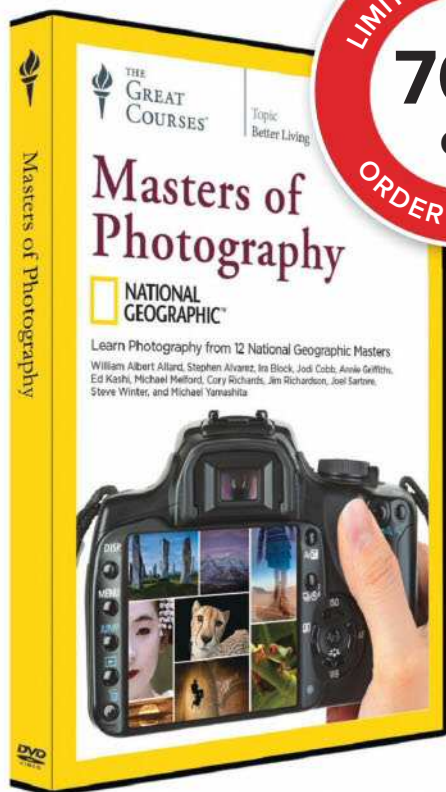
This photo of the Northern Lights was taken in Whitehorse, Yukon, Canada, at around 9 p.m., as a huge coronal mass ejection (CME) hit the Earth's atmosphere, causing one of the best Northern Lights shows I've witnessed. The Lights lasted all night.

Sunset Through The Olympic Mountains

Photographer: Christopher Teren

I was on a flight from Seattle to Friday Harbor, flying along the eastern edge of the Olympic Mountains, during what many photographers consider to be the best time of day—the Golden Hour—that time just before the sun sets, when the light gives everything a golden hue. Combine that with a hazy sky, and you get pure magic! This was shot from a private airplane flying at 2,000 feet above sea level on December 30, 2014.





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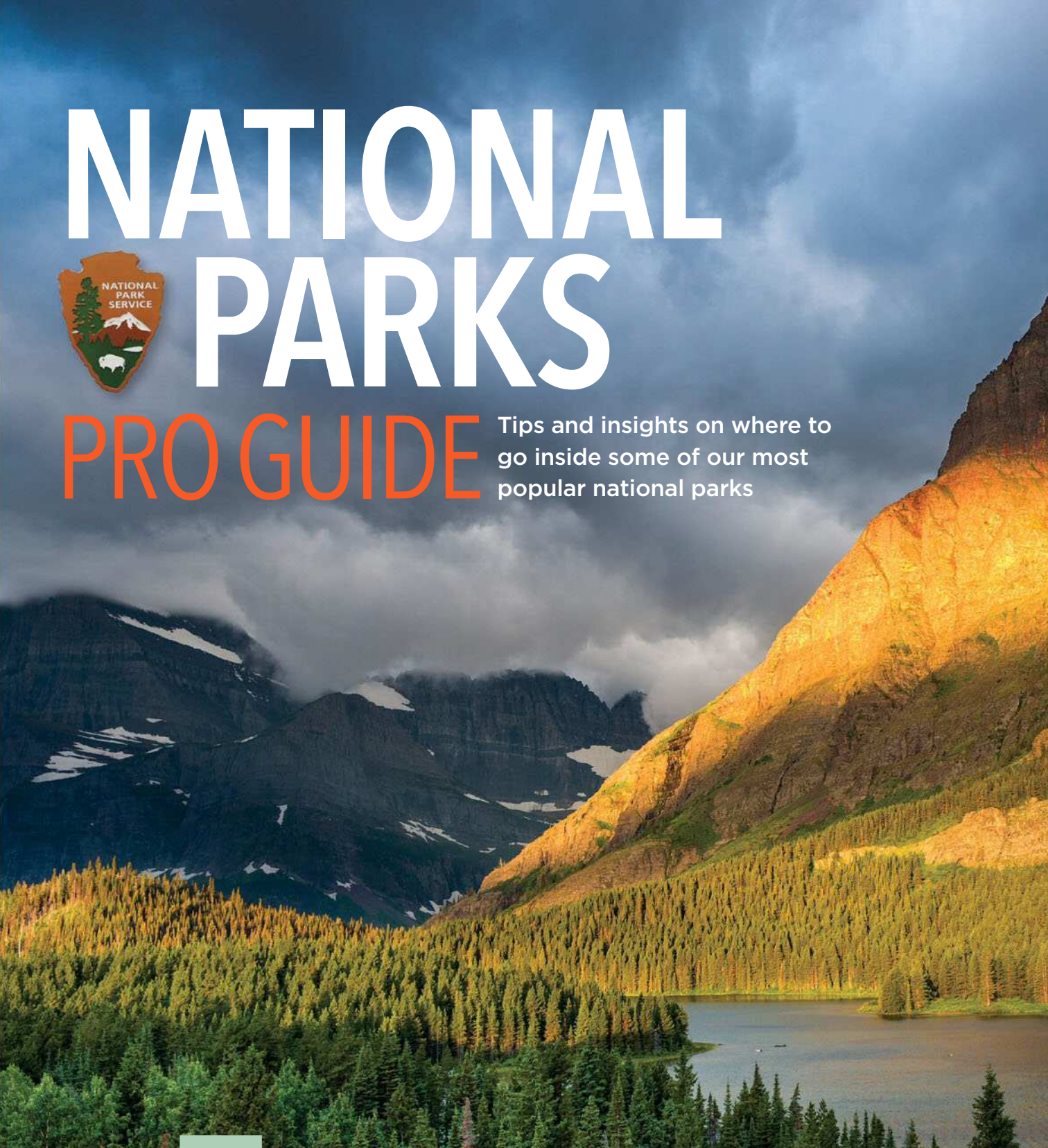
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NATIONAL PARKS



PRO GUIDE

Tips and insights on where to go inside some of our most popular national parks



The national parks are a treasure trove of wilderness, habitat and scenic beauty, but most visitors never venture more than 100 feet from the roads or parking areas. The bulk of the landscape in our parks is pristine and quiet, and just waiting for you and your camera. *Outdoor Photographer* reached out to nature photographers across the United States to get their advice on where to go for spectacular images in many of our most popular national parks. Because we have limited space in the magazine, you can check out an extended version of this article at outdoorphotographer.com.



Swiftcurrent Lake



Bowman Lake

Glacier National Park, Montana

Chuck Haney | www.chuckhaney.com

▲ Swiftcurrent Lake

Swiftcurrent Lake in the scenic Many Glacier Valley in the park's eastern front is a favorite for sunrise shooting. You can only hope the infamous winds aren't blowing hard from the

mountains. This morning, the winds were calm and the clouds were hanging in the peaks as the sunrise light broke through, giving the image great dramatic lighting. I combined two different versions of the original image in Photoshop where I brought out some of the shadow detail while retaining the glow on Grinnell Point. For this shot, I used a Canon EOS 5D Mark III and Canon 24-70mm *f*/2.8L lens for 10 sec., at *f*/13 and ISO 200. The Many Glacier Valley has abundant wildflowers in July and is home to fantastic wildlife opportunities, as many grizzly bears, moose, bighorn sheep and mountain goats inhabit this scenic valley.

▲ Bowman Lake

Bowman Lake is situated in Glacier's remote northwestern corner and is one of my favorite locations to shoot in all of the park. I often go with my kayak and explore this almost perfect setting of lake and mountains. There's a great campground located right at the head of the lake and makes for a nice evening shoot. Here, a break in the clouds provided a shaft of light that gave this image the dramatics it needed to be successful. Summers are great, but the best time to shoot here is in late October when the tamarack trees turn golden and you'll have the campground all to yourself. At the edge of the park, the Polebridge Mercantile is extremely photogenic and the aroma coming from the bakery very seducing. I used a Canon EOS 5D Mark III and Canon 24-105mm *f*/4L lens at 1/25 sec., *f*/8 and ISO 200.



Cadillac Mountain Sunrise

Acadia National Park, Maine

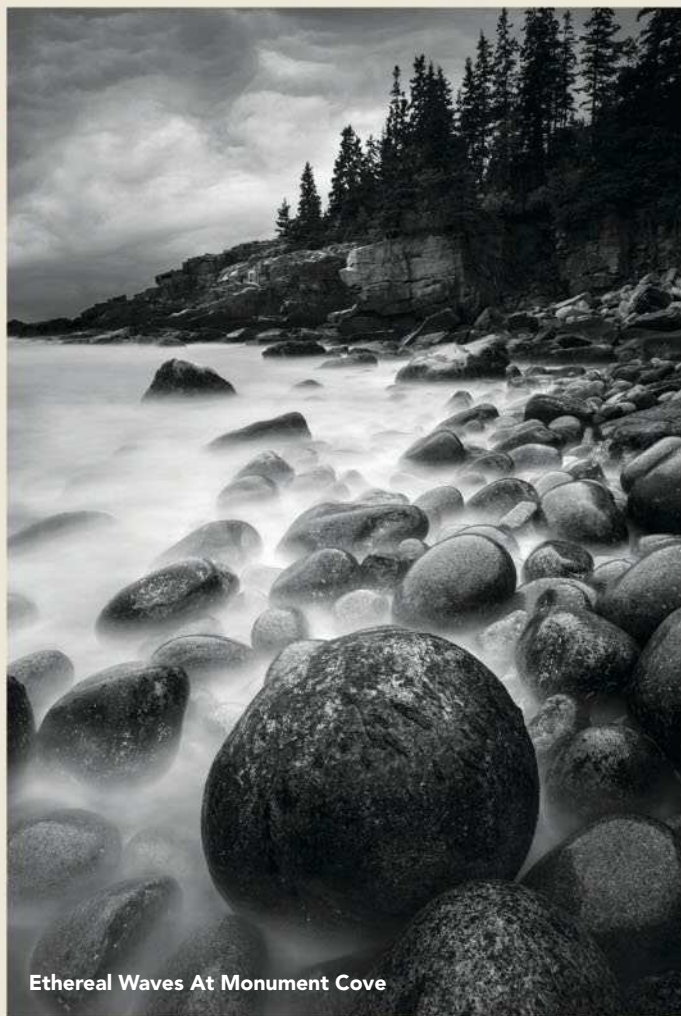
Joe Braun | www.citrusmilo.com

▲ Cadillac Mountain Sunrise

Located along the rugged coastline of Maine, Acadia National Park is special because it has such diverse terrain in such a small area, from the beautiful pink granite shoreline to the majestic glacier-carved mountain peaks to the pristine woodlands and lakes in between. One of the iconic and most popular spots to catch sunrise is from the summit of Cadillac Mountain, the highest spot on Mount Desert Island. Allow at least an hour before sunrise to drive up to the summit and find a spot to shoot. While you'll be sharing the summit with a crowd of people, it's easy enough to wander around the summit trail to find an unobstructed view with an interesting foreground. Shooting with a tripod and bracketing or using a graduated neutral-density filter is recommended. This shot was taken with a Nikon D800 and 24-120mm *f*/4 lens at 28mm and *f*/8. While Cadillac Mountain is most famous for its sunrises, the sunsets from the summit can be spectacular, as well!

▼ Ethereal Waves At Monument Cove

Another rewarding spot to shoot in Acadia National Park is the coastline along Ocean Path, where rugged granite cliffs alternate with several "beaches" of large granite rocks that have been smoothed over by the unrelenting force of the ocean waves. Sunrise is a great time to photograph the coastline, but since the Park Loop Road is one-way, it's best to leisurely scope out spots to shoot beforehand. Numerous parking areas offer convenient access to many famous landmarks, including Sand Beach, Thunder Hole, Monument Cove and "Boulder Beach," a popular spot for photography located just north of Otter Cliff. Foggy days are also good opportunities to photograph the coastline in a more surrealistic light. This shot was taken with a Nikon D800 and 18-35mm *f*/3.5-4.5G lens at 18mm and *f*/11 with a 3.0 neutral-density filter for a two-minute exposure that turned the waves into an ethereal mist. Be extremely careful when exploring the coastline; the rocks are amazingly slippery and treacherous to camera gear and limbs. Other wonderful spots for photography in Acadia include the Bubbles from the Jordan Pond House, many of the majestic carriage road bridges, including Cobblestone Bridge, and the iconic Bass Harbor Head Light.



Ethereal Waves At Monument Cove



Storm Clouds



Everglades National Park, Florida

Constance Mier | www.constancemierphotography.com

▲ Great White Egret

From November to April, the Everglades is one of the most popular locations for bird photography. From May to October, the mosquitoes and heat are intolerable to most, and several migrating birds don't reside in the Everglades. For the adventurous wildlife photographer, however, summer can be rewarding here. As an example, this nesting great white egret is flying back to its nest (handheld Sony a77v and Sony 70-400mm F4-5.6 G SSM lens). It's one of the many species of birds that

lives in the Everglades year-round. I captured this image while in my canoe on Chokoloskee Bay. Wading birds are out in the open in large shallow bays, so a canoe or kayak is the best way to access them. During early morning, you can avoid the mosquitoes, heat and frequent afternoon storms. On the park's northern end, you can access Chokoloskee Bay and the gulf waters from the Gulf Coast Visitor Center. In addition, wading birds can be found in great numbers during low-tide conditions on Florida Bay, accessed from the Flamingo

Visitor Center, on the southern end of the park. If you're lucky, you may spot an American crocodile in the water.

◀ Storm Clouds

Everglades National Park is a unique combination of freshwater marshes, coastal prairies and mangrove swamps. It has two seasons, wet and dry. Summer brings much rain, which makes it the most rewarding and yet most challenging time to photograph the Everglades. For many, the relentless heat and mosquitoes are intolerable. But, if you can manage these, you'll be rewarded with beautiful scenes, and most of these will be accessible to you within a short walk from your motor vehicle. The Everglades doesn't have lofty peaks, mighty glaciers or rushing streams, but its amazing summer skies fill with dramatic storm clouds in the afternoon, spreading wide over the low-profile landscape. In this image, dark clouds offer a rainbow to accompany the frontlit saltwort prairie (handheld Sony a77v, Sony DT 16-50mm F2.8 SSM lens). Along the Ingraham Highway, a 38-mile paved road through the park, you can choose from a variety of unique landscape subjects, including pine rocklands and dwarf cypress swamp. Pine rocklands are seriously threatened by development outside of the park, so the privilege to photograph these areas is worth the trouble. Bring bug repellent, a mosquito head net, sunscreen and water.



Elves Chasm Waterfall



Redwall Cavern

Grand Canyon National Park, Arizona

Josh Miller | www.joshmillerphotography.com

▲ Elves Chasm Waterfall

This photo was created during a 21-day winter rafting trip through the Grand Canyon. Having seen a couple of snapshots from a friend's trip through the canyon, I could tell it had great photographic potential, so we made a special point to spend enough time in the location to wait for the right light. Elves Chasm is unique in that it only can be reached easily by rafting the Colorado River. The only alternative is a long dangerous backpack that involves technical climbing and rope work. While on the

river, I kept my photo gear safely inside a watertight Pelican case mounted next to me on the raft. While on shore, I'm able to pull my camera bag out of the case and carry it with me as I explore side canyons and waterfalls. This shot was taken with a Nikon D200, Nikon 12-24mm *f*/4 lens, Gitzo tripod and Really Right Stuff ballhead.

▲ Redwall Cavern

While rafting the Colorado River through the Grand Canyon, we made a lunch stop at Redwall Cavern. Hav-

ing read about the cave in John Wesley Powell's account of the first descent of the Colorado River, I was excited to spend a little time exploring it with my camera. Knowing there was no way for a single exposure to hold the tonal range of the rock deep in the cave as well as the sunlight outside the canyon, I bracketed multiple exposures. At the time, HDR was in its infancy, but I could see its potential for situations like this. It wasn't until several years later that the technology matured enough that I was able to pull the exposures together successfully. But it proved to me the value of capturing for the future; we never know what future technology will make possible.

Badlands National Park, South Dakota

Bryan Hansel | www.bryanhansel.com

Brooding Badlands ►

Unzipping my tent to a chilly February morning in Badlands National Park, I found a sky covered with clouds. I had come here to photograph the full moon rising and setting over the jagged Badlands formations. With the dense clouds, it didn't look like I'd get a picture I wanted. Just before the moon set, a sliver of sky broke through the clouds above the formation I had scouted the day before. A moon pillar, a type of atmospheric phenomena created by ice crystals, jetted out from the clouds toward the ground. While not the moonset, I knew I had the picture I wanted. I shot the picture at 135mm on my Nikon 70-200mm *f*/2.8 VR and Nikon D800. One of the reasons why I love winter in

the Badlands and a reason why I teach an early winter workshop there is that few people visit in the winter. In the summer, you'd share a full campground, and the scenic waysides overlooking the otherworldly landscape feel crowded. In the winter, you have the park to yourself, save a few park rangers and herds of mule deer, bison and bighorn sheep.

Castle Trail ►

My boots slid on mud hidden under the dried and cracked surface of a Badlands formation while I balanced precariously on the side of a steep drop-off. For a second, I thought, "This isn't going to be a fun fall." But, then, I caught my balance. I waited in the bitter cold on the side of that formation, entranced by



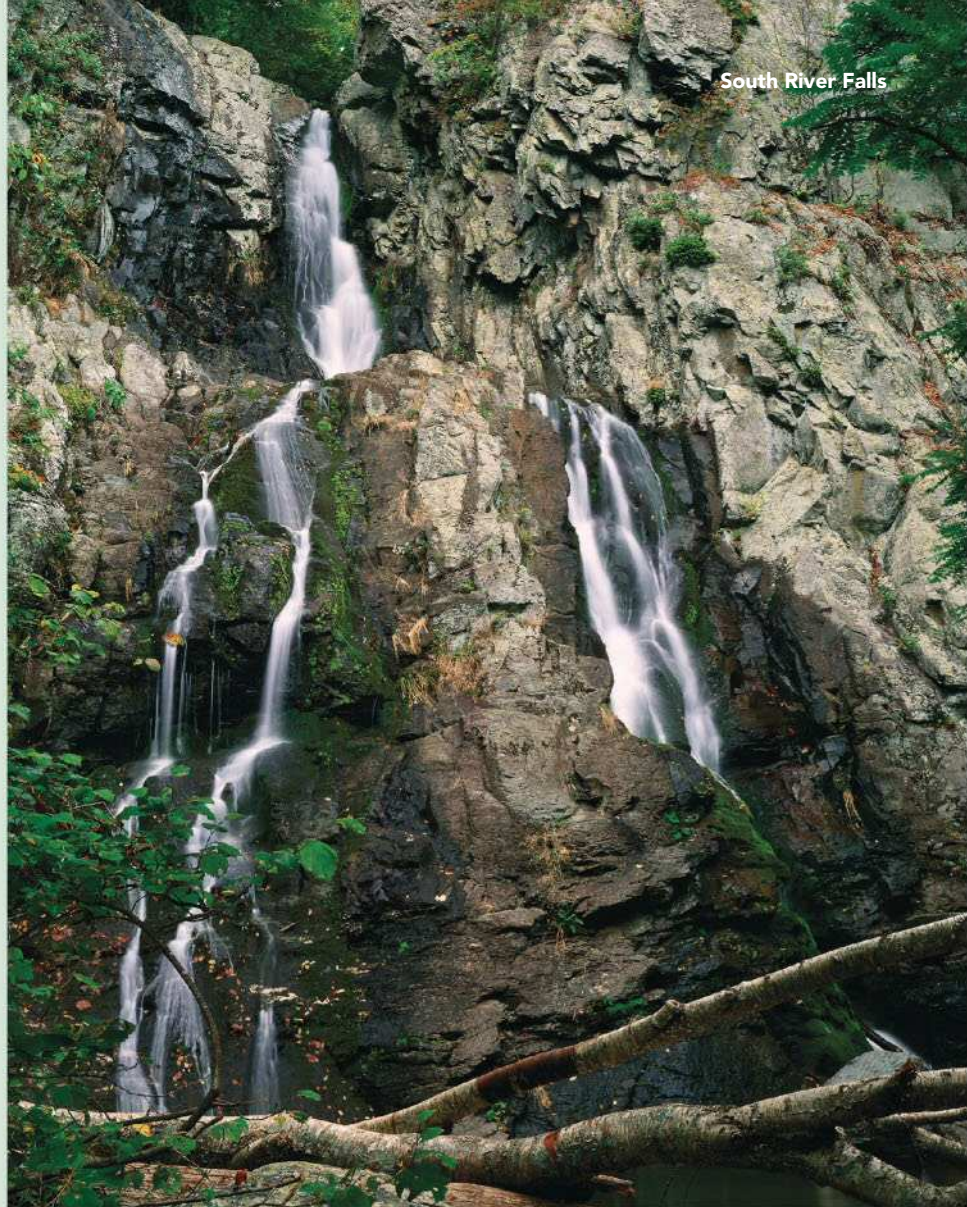
Shenandoah National Park, Virginia

JW Johnston

www.jwjohnton.com

South River Falls ►

In the case of Shenandoah National Park's South River Falls, greater effort can yield greater reward. The park's third-highest waterfall can be stunning. An easy one-and-a-third-mile, downhill walk from the trailhead takes you to an overlook with a good view, from a distance. But if you literally go the extra mile, you can get to the South River Falls base. So I stayed on the trail, turned right onto a fire road, and took a narrow, rocky and sometimes steep path, climbing over and crawling under fallen trees. As the path opened up, before me was a breathtaking 83 feet of cascading water and craggy rock. Going to the base transforms an easy hike into a moderately difficult one. A two-and-a-half-mile round-trip hike becomes four-and-a-half miles, with an estimated 1,300-foot total climb. Set aside the whole day. Take a lunch, plenty of water, a hiking pole and wear good hiking boots. It helps if you're in good shape. And, remember, wet rock is slippery. My equipment for this August 1997 photograph was a Toyo 45AII, Schneider 90mm lens, 81A polarizer and Kodak E100S film.



South River Falls

Brooding Badlands



the seemingly endless views, until the sky turned the same orange color as the 30-million-year-old mud I stood on. To make the shot, I used a Nikon D800 and a Nikon 24-120mm *f*/4 VR lens at 48mm. To balance the exposure between the sky and the ground, I used a 3-stop Singh-Ray Daryl Benson Reverse Graduated Filter stacked with a 2-stop soft Galen Rowell Graduated Neutral-Density Filter. Because the contrast between the sky and ground is so great in the Badlands, I recommend bringing a full set of ND grads. Make sure to bring warm-weather clothing along with your down parka. The day after I took this shot in March, the daytime temperature reached the 60s. On a first visit, drive the Badlands Loop Road, the main route through the park, but if the ground is frozen or dry, make sure to hike into the formations. My favorite hike is a one-way trip from the Door and Window area to Saddle Pass along the Castle Trail. During the summer months, the light can be harsh in the midday, but winter months offer all-day golden hour light.



Castle Trail



Sunrise Over Alum Creek



Bull Elk And Brown-Headed Cowbird

Yellowstone National Park, Idaho, Montana, Wyoming

Sandy Sisti | wildatheartimages.photoshelter.com

▲ Sunrise Over Alum Creek

Known for its spectacular scenery, incredible thermal features and wealth of wildlife, Yellowstone National Park is an unparalleled photographic destination. With all the park has to offer, it's no wonder Yellowstone receives over 3 million visitors each year. Since summer is Yellowstone's busiest season, you may want to schedule your photo adventure during the early-morning and early-evening hours. Not only will you avoid the crowds, but you'll be shooting in the magic light of the golden hour, after sunrise and before sunset.

54 Outdoor Photographer outdoorphotographer.com

During midsummer, temperatures often dip below freezing in Hayden Valley, causing mist to rise off the rivers and creeks in the early morning. When this phenomenon occurs, a popular location to photograph sunrise is along Alum Creek on the north end of Hayden Valley. On this particular morning, the low-lying fog, combined with smoke from distant wildfires, created a dramatic sunrise. This image was photographed using a Canon EOS 5D Mark III, Canon 100-400mm *f*/4.5-5.6L IS USM lens and a Gitzo tripod with a Wimberley head.

◀ Bull Elk And Brown-Headed Cowbird

When visiting Yellowstone, it's best to pack multiple lenses along with a sturdy tripod and a beanbag or window support for shooting from your vehicle. A super-telephoto lens and a medium-range telephoto zoom lens are recommended for wildlife shots, and a wide-angle lens is a must for both landscape and environmental photos. With these lenses in your camera bag, you'll be prepared for almost any situation you encounter while visiting America's first national park.

If you visit Yellowstone during July and August, chances are, you'll find bull elk feasting in the lush summer meadows. You'll also find flocks of brown-headed cowbirds following the elk as they graze. Cowbirds often perch on or near elk and other ungulates to collect the insects they attract. In this case, a persistent cowbird made numerous attempts to land on a bull elk's antlers, perhaps mistaking them for tree branches. After a while, the tenacious cowbird finally gave up and decided to perch in a nearby pine. This image was photographed from a vehicle using a Canon EOS 5D Mark III, Canon 70-200mm *f*/2.8L IS II USM lens and a bean bag for support. OP

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Aspen Photo Art by Larry Bennett

Clear Lake Colorado sets above timberline, about 13,000 ft. close to the old mining town of Silverton. This image is a 7 exposure HDR, shot early morning, in the Summer of 2012, with 24-70mm zoom on a Canon 7D.

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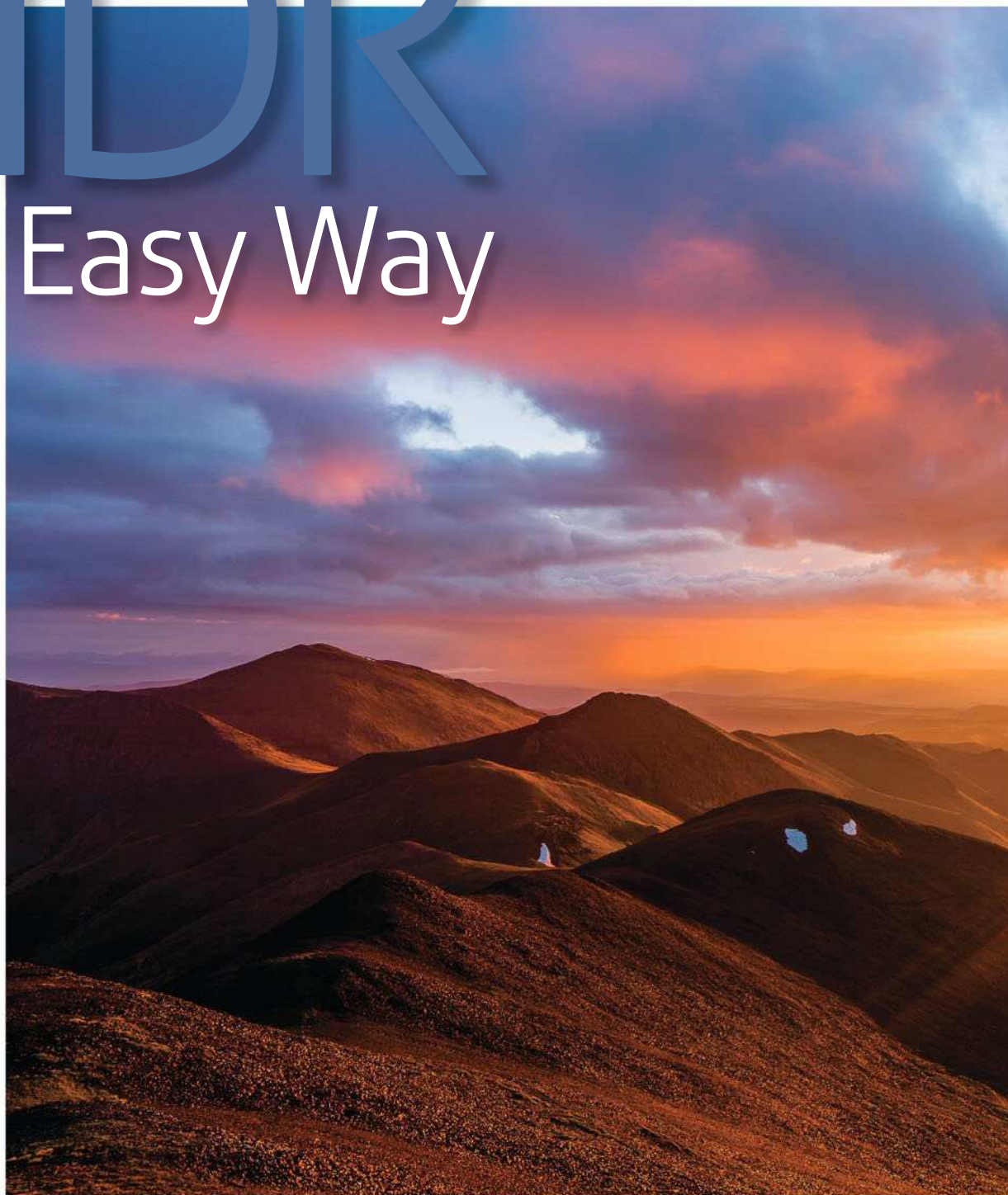
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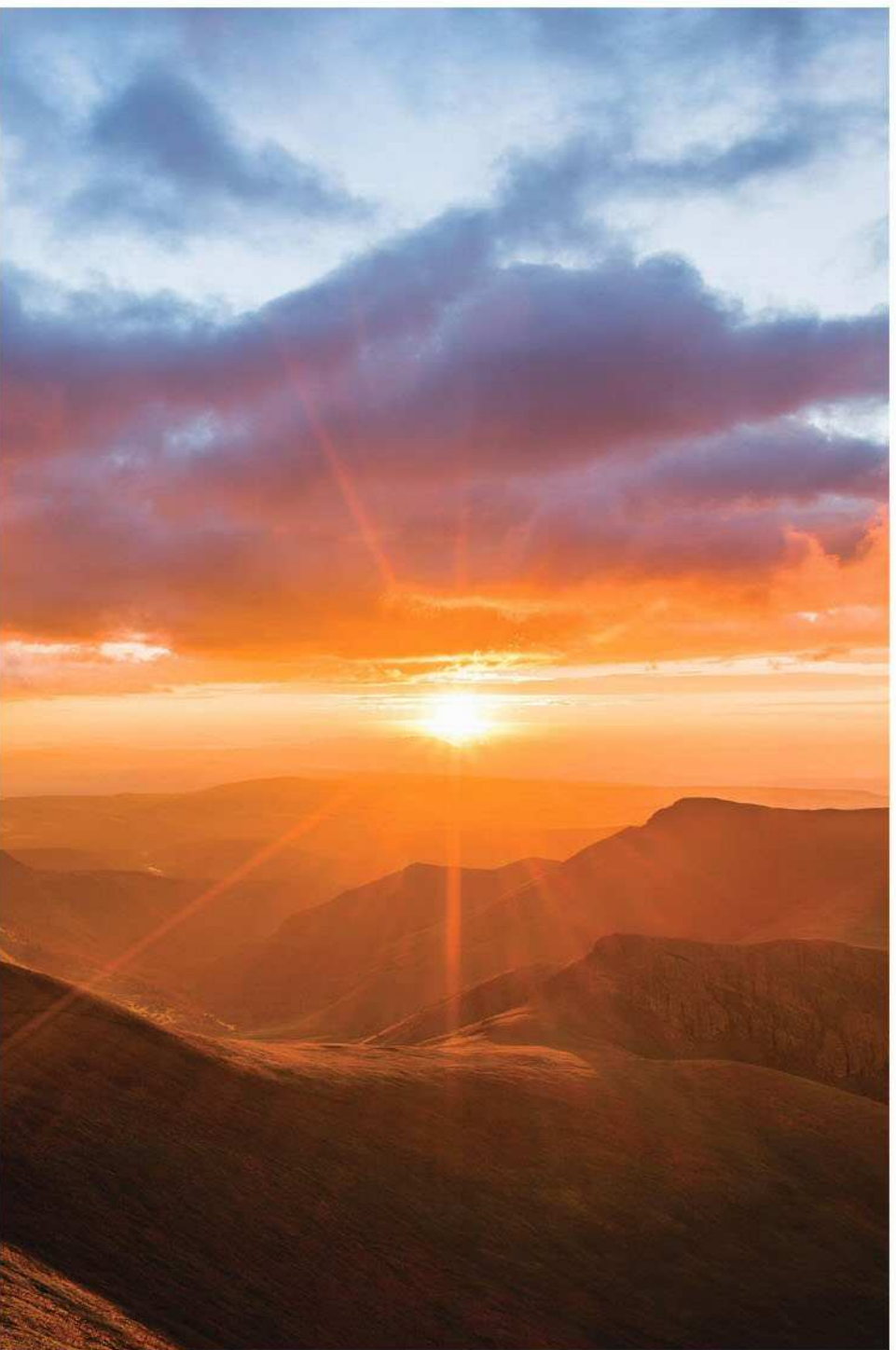
HDR

The Easy Way



Learn to make use of this increasingly mainstream technology without losing the soul of your images

TEXT & PHOTOGRAPHY BY GLENN RANDALL



LEFT: High-contrast, backlit images like this are excellent candidates for HDR treatment, but it's easy to go overboard. Glenn Randall's final image shows proper restraint, creating a rich image with good dynamic range.

unnatural-looking results and put off by the hassle and complexity (not to mention cost) of learning new software.

Imagine an approach to HDR imaging that's inexpensive, uses software you may already own and know, is completely nondestructive, and produces the most natural-looking results I've seen. Sound like I'm selling snake oil? I'm not.

The solution is to use Lightroom. You get to use all the familiar Lightroom tools to edit your HDR image in exactly the same way you'd edit any single RAW file. All of your edits are nondestructive, which means you can change your mind and re-edit the same file as many times as you like. Editing an image in Lightroom doesn't change the underlying pixels. Instead, it changes the instruction set that Lightroom applies to those pixels when you export the image as a JPEG for the web or a TIFF for printing. That instruction set can be changed at any time. Lightroom is moderately priced, and it has many uses beyond editing HDR images. Best of all, the results are usually better than I've gotten using Photomatix Pro 5, HDR Efex Pro 2 or HDR Expose 3. In this case, the easiest way is also the best way.

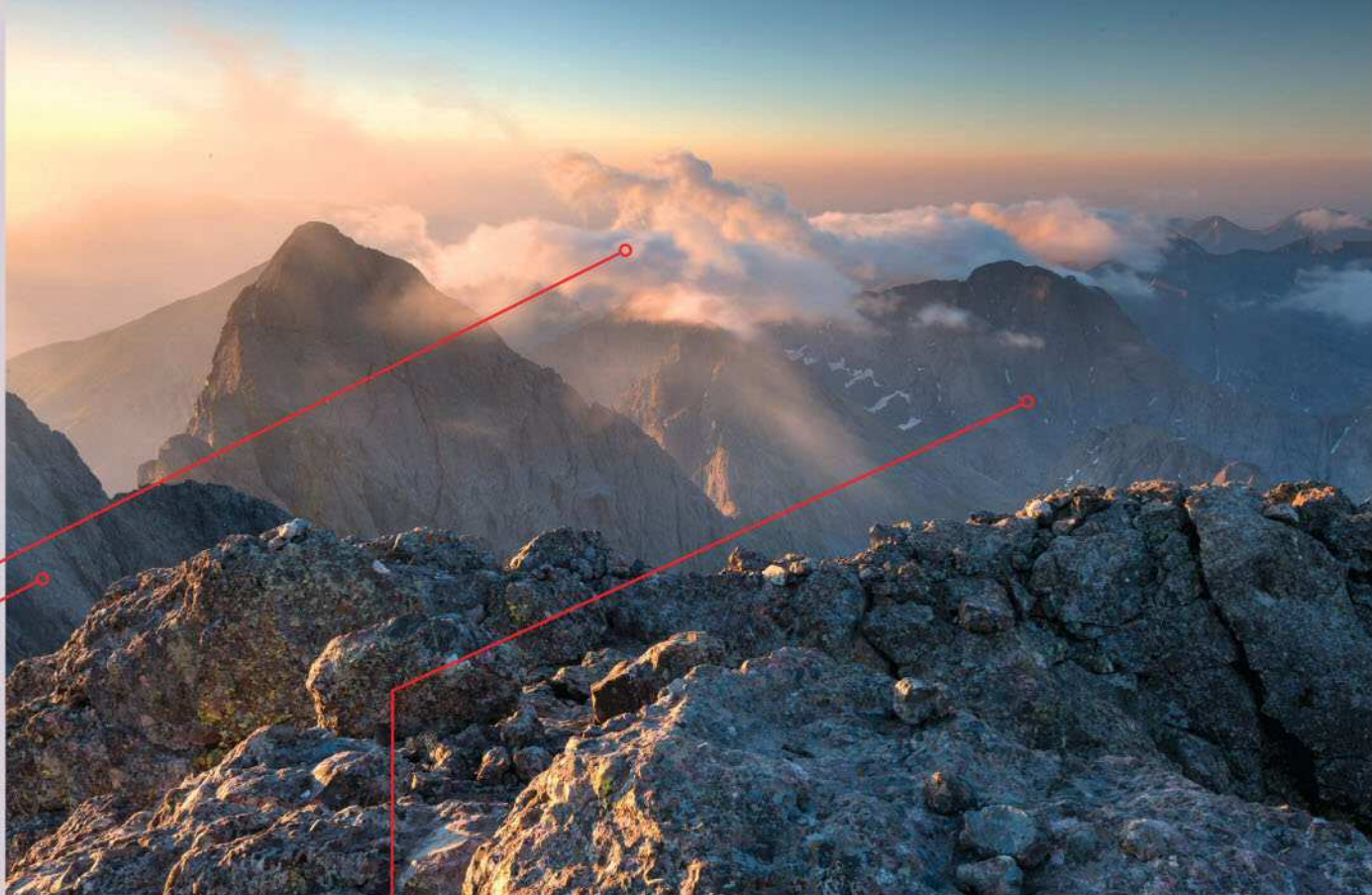
There are a couple of small catches. First, you must use Lightroom 4.1 or higher. Earlier versions can't tone-map (the technical term for edit) 32-bit files. To understand the second catch, you need to know a bit more about how HDR imaging works.

The process starts with a bracketed set of images, preferably shot on a tripod, that are identical except for the exposure. I usually shoot a five-frame bracket set with a one-stop bracket interval, so my exposures range from two stops under the meter's recommendation (-2 exposure compensation) to two stops over (+2 exposure compensation). The next step is combining all of those images into a 32-bit, high-dynamic-range TIFF, which brings us to the second catch. Lightroom 5.3, the latest version as I write, can't create

We've all heard the sales pitch: High-dynamic-range imaging has solved photography's last great problem, creating beautiful, realistic photographs of high-contrast scenes. In many situations, no single capture can record the full range of tones we can see with our eyes. By

making a bracketed series of exposures and combining them in suitable software, photographers can, at last, make images that truly match what they saw.

Do you buy it? Many of my students don't. They're intrigued by HDR's potential, but dissatisfied with the



1) Maintain good local contrast in the highlights and shadows to preserve a realistic look.

2) Clarity is a great way to add life to areas that might otherwise appear flat, but don't overdo it. A setting between 10 and 30 is usually sufficient. Remember that you can paint on Clarity with the Adjustment Brush to confine the effect to only those areas that need it.

32-bit files from your bracketed set of images. You must use additional software to create that 32-bit file.

There's a simple fix, fortunately. Create the 32-bit file using Photoshop CS5 or higher, Photomatix Pro or Merge to 32-bit HDR, a \$29 plug-in for Lightroom created by HDRsoft, the same company that makes Photomatix.

The easiest solution is the Merge to 32-bit HDR plug-in, available at www.hdrsoft.com. After installing the plug-in, simply select all the images in Lightroom, right-click, and then choose Export > Merge to 32-bit HDR. In the next dialog box, I always check Reduce Noise. I check Remove Ghosts if some part of the subject, such as branches or flowers, may have moved in between frames. Check Align Images if you were shooting handheld or on a shaky tripod. After you click Merge, the 32-bit TIFF is

returned to Lightroom automatically.

If you already have Photomatix Pro, you don't need the plug-in. Just launch Photomatix Pro as a stand-alone application (don't access it through Lightroom). Click on Load Bracketed Photos. In the next dialog, check the box labeled Show 32-bit Unprocessed Image. Choose your preprocessing options, which are similar to those in the Merge to 32-bit HDR plug-in, and click Merge. If you chose Show Options to Remove Ghosts, you'll get the option to draw a selection around the ghosted area. You then can choose one frame from your bracketed set that Photomatix will use to create the image within the ghosted region. This is a more effective deghosting technique than is available through the plug-in. You can also choose an automated method of deghosting. If nothing was moving when you shot your bracketed set, leave this box unchecked. Once the merge is complete, choose File > Save As. Select Floating Point TIFF as the file format and click OK. You can close Photomatix, since you'll be using Lightroom to complete the tone-mapping procedure. Import the saved TIFF file into Lightroom. If you've put the file in the same folder as the source images, as I usually do, then you can just right-click on the folder name in the Library

panel and click Synchronize Folder. Be sure to check Show Import Dialog Before Importing. When that dialog opens, uncheck any Develop presets you may have created and click Synchronize.

If necessary, you can create the 32-bit TIFF in Photoshop, but I don't recommend it if your image contains the sun. In my experience, the resulting file often shows odd, nearly impossible-to-correct banding in the sky, whereas the file created in the Merge to 32-bit HDR plug-in or Photomatix will show no such artifacts. For the record, here's the procedure in Photoshop.

First, go into Lightroom's Preferences (Edit > Preferences) and choose External Editing. In the File Format drop-down menu, choose TIFF. PSD files won't work for this procedure. In Lightroom, select all the images in your bracketed set and choose Photo > Edit In > Merge to HDR Pro in Photoshop. When the Merge to HDR Pro dialog box opens, choose 32 Bit in the Mode drop-down menu. All editing options will disappear. The image will look terrible. Don't worry, just click OK, and Photoshop will create the 32-bit file. Again, it may look awful. Save the image. There's no need to change the file name or location. It will appear in your Lightroom catalog right next to the original RAW files.

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1) Let highlights be highlights. Allowing bright areas of the image to become near-white enhances realism.

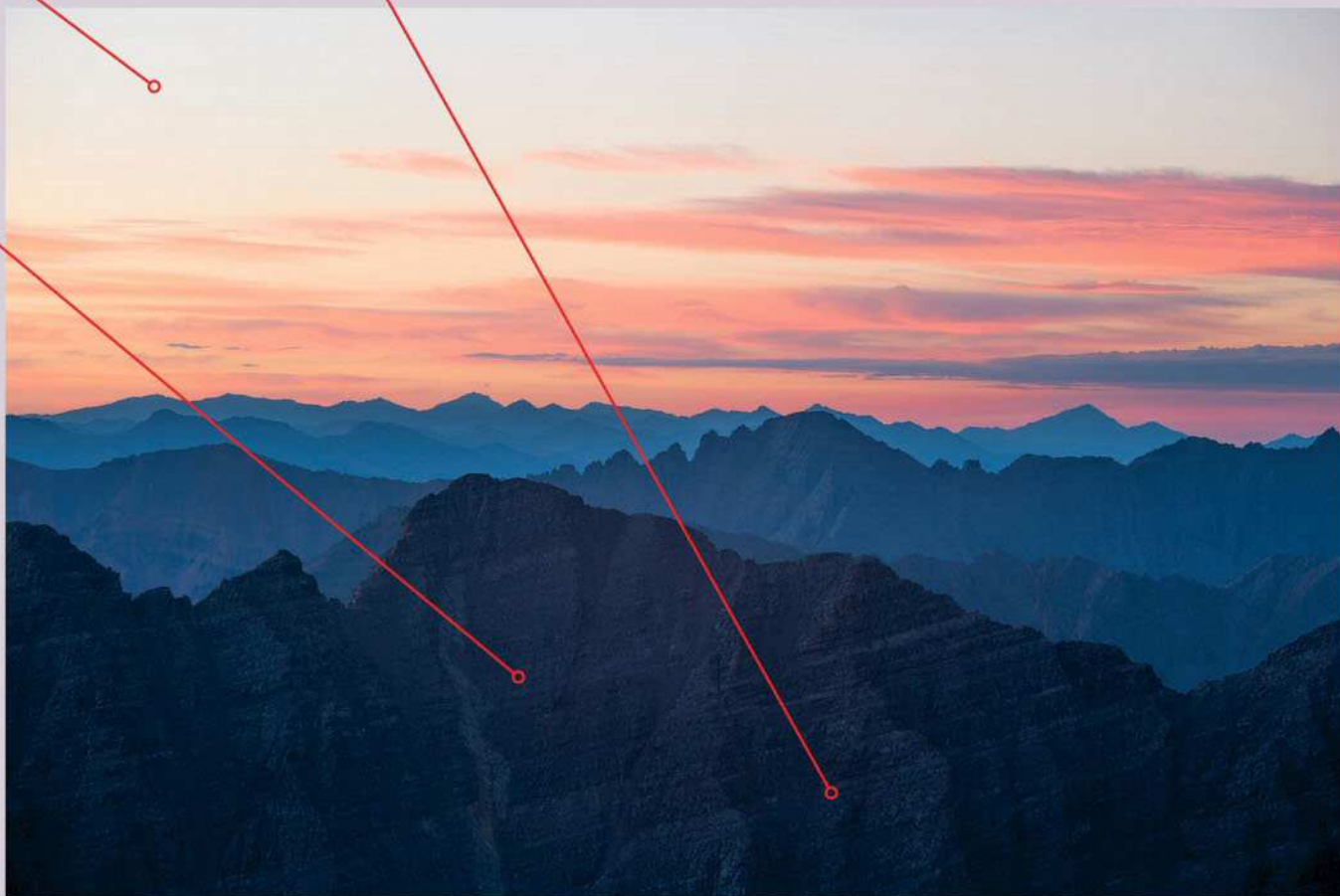
2) Keep textural contrast enhancements under control. Creating an undesirable “grunge” look screams “HDR.”

3) Let shadows be shadows. Retaining small areas of pure black increases the dynamic range of the image and makes highlights appear brighter by comparison.

Tone-Mapping 32-Bit TIFFs In Lightroom

Regardless of the method you use to create the 32-bit file, the next step is the same: Open the image in Lightroom’s Develop module. The first thing you’ll notice is that the Exposure slider now shows a +/-10-stop range instead of the usual five. While you’ll probably never use the full range of the slider, the magnitude of possible adjustments shows just

how broad a range of light intensities is contained in a 32-bit file. I usually start by using the Exposure slider to adjust the overall “feel” of the image, the overall balance of lights and darks, without worrying too much initially if that adjustment pushes either end of the tonal scale off the chart. Most often, 32-bit TIFFs come in feeling “heavy,” with excessively dark shadows, so I start by opening those shadows with the Exposure slider.





Moving on to the Shadows and Highlights sliders, I try moderate moves first. Values over 50 for the Shadows slider can flatten shadow contrast, creating an unnatural look. Strong moves of the Highlights slider are less likely to cause problems. Remember that leaving a little bit of pure black and almost-pure white in your image enhances realism. The light tones will look lighter when placed next to pure black, enhancing the image's apparent dynamic range. Most high-contrast scenes have some element that should be placed as high in the tonal scale as possible without clipping the element to pure white. The disc of the sun itself is an exception; it will always be blank white. The need to retain small areas of pure black and near-white is the main reason you should be cautious with the Blacks and Whites sliders. I like to set Lightroom's background color (Edit > Preferences > Interface) to white so I have a visual reference for highlight brightness. Keep an eye on the histogram as you make adjustments. It's your best guide to what's happening in the image.

Many 32-bit images will benefit from adding contrast in the Tone Curve panel. That added snap in the midtones can make the image more lively, but also darken the shadows and brighten the highlights excessively. Rather than returning to the Shadows and Highlights sliders, consider adjusting shadow and highlight density with the Graduated Filter and Adjustment Brush, which tend to preserve believable local contrast within the highlight and shadow regions better than strong moves of the Shadows and Highlights sliders.

HDRsoft's Merge to 32-bit plug-in

ABOVE: It's easy to go too far with HDR, especially when you try to bring up shadow detail. Let your shadows be shadows and resist the temptation to overenhance. You want the final image to feel real.

does tend to enhance saturation. If your image has become garish, consider dialing saturation down by 5 or 10 points.

Using the Lightroom approach to HDR will let you recover much more clean, usable detail, even in the darkest shadows and brightest highlights, than you can from a RAW file. This approach comes closer than any method I've tried to achieving the goal of creating evocative, lifelike renderings of the high-contrast scenes that often yield the best landscape images. OP



You can see more of Glenn Randall's work, sign up for his monthly newsletter, read his blog, and learn about upcoming workshops at his website, www.glennrandall.com.

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See more articles about how to use HDR to enhance your images without creating a grungy, overdone look on the OP website at outdoorphotographer.com.

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Our Beautiful, Fragile

Engaging and inspirational, Peter Essick's environmental photojournalism might just save the world

BY AMY GULICK | PHOTOGRAPHY BY PETER ESSICK

For many people, a beautiful wild landscape image serves as an escape to a peaceful place away from the noise, congestion and stress of modern civilization. Just looking at a gorgeous nature photograph stimulates daydreams of being in the place portrayed. Photographer Peter Essick has never looked at landscape photography that way. For him, images of wild nature are more than just pretty pictures.

"It's important to experience nature undisturbed in order to have an understanding of how ecosystems and all that live in them are meant to be," says Essick. "Photographs of wild nature help us understand natural systems and biodiversity, and can

serve as road maps for how to restore ecosystems that have been damaged."

As a photojournalist covering the environment, Essick has been a frequent contributor to *National Geographic* magazine for 25 years, producing 40 feature articles on an array of topics. His new book, *Our Beautiful, Fragile World: The Nature and Environmental Photographs of Peter Essick* (Rocky Nook, 2013), showcases his work spanning a quarter of a century on subjects including fresh water, forests, wilderness, climate change, pollution and energy. In keeping with his photojournalistic style, Essick chose a single full-page photograph to illustrate each of the 50



World



one-page stories in the book. His pictures both celebrate nature and educate people about the precarious state of natural ecosystems in today's modern world.

"My environmental stories focus on the flip side of wild nature," he says. "Usually something has gone wrong. Maybe there has been an environmental train wreck where raw nature has been replaced by nuclear waste or toxic chemicals that are difficult to clean up. Or maybe it's the impact of millions of people, concentrated in one watershed or valley, which ends up contaminating a bay or fouling the air. Whatever the cause, I think it's important to photograph the results."

Inspired by Ansel Adams and drawn to stories with a message, Essick describes his style as a hybrid approach between journalism and nature photography, explaining that "most landscape photographers probably never take pictures of people, and traditionally, photojournalists don't go out in the woods and photograph trees."

It's challenging to blend the two different photographic styles, however, and early in his career, he faced the artistic quandary of how to make good pictures of bad issues—how to portray, for example, the "terrible beauty" of a nuclear disaster, toxic chemicals or oil extraction, and how to make images of these disturbing issues that actually engage people.

"Environmental pictures that are too direct—pollut-



ing smokestacks, for example—seem to have lost their meaning,” he says. “Surveys say that many people are tuning these images out, whether out of fatigue, denial or a combination of both. Visual artists who want their work to address these issues need to use a different approach.”

Essick finds that images with ambiguity tend to draw people in because it’s not immediately apparent what story is being told. It’s a softer, more engaging approach than hitting people over the head with a stark, literal image. A good example is a picture he made for a *National Geographic* story about fossil fuel extraction in the Alberta oil sands of northern Canada. Oil sands extraction involves injecting water and chemicals into the ground, and

surface with a dark sky in the background. In the center of the picture is a red platform with a solar-powered decoy of a peregrine falcon, a natural predator of waterfowl. When birds fly over, a laser detects their movement and triggers the fake falcon to flap its wings, emit a recorded call and deter the birds from landing on the toxic pond. From an artistic standpoint, the photograph works because of its strong composition and use of light. From a photojournalistic standpoint, the image tells more than one story, depending on the perspective of the viewer. At its surface, the picture portrays a problem with a solution, but it also calls into question the much larger issue of the

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After contributing to National Geographic magazine for over 25 years, photojournalist Peter Essick shares his work about climate change in the new book “Our Beautiful, Fragile World: The Nature and Environmental Photographs of Peter Essick.” Blending photojournalism with nature photography, Essick’s work focuses on people’s impact on the environment, and the reciprocal impact environmental changes have on the communities in the area. Many people are no longer engaged by direct imagery, such as smoke billowing from smokestacks, so Essick has taken on a new soft visual perspective, garnering engagement with beautiful, yet incongruous images that make the viewer ask more questions. While Essick is passionate about these climate stories, their intensity can take a toll on his spirit. He infuses pure nature stories into his schedule to reinvigorate himself so he can continue working on eco-journalism with hopes that his work will benefit his son and future generations.

then depositing a mixture of water, sand, clay and residual oil into man-made tailings ponds. The ponds can contain concentrations of chemicals and residual surface oil deadly to fish and wildlife. Essick obtained permission to photograph a tailings pond and the solution that one oil company had devised to keep waterfowl off of the pond. His photograph shows dark oil sludge on the water’s

continued reliance on fossil fuels and the environmental costs of doing so.

“Perhaps a good environmental photograph, like our life on this planet, is a complicated duality,” says Essick. “Homo sapiens, the same species that’s capable of comprehensive destruction, has also developed the brain capacity to create meaning





in the form of art. This dichotomy both sets us apart from other creatures and makes the times we live in so fascinating and confounding.”

Another good example of a picture open to varying levels of interpretation came out of an assignment for a *National Geographic* story on U.S. National Forests. To show both the diversity and multiple uses of the nation’s national forests, Essick photographed many locations, including logging in the old-growth forests of the Pacific Northwest, a ski area in New Hampshire, a rain forest in Puerto Rico, a remote river in Oregon and a shooting range in California. The one image he chose to illustrate the story in his book is a silhouette of trees and hills in the foreground that gives way to a night sky filled with bright, colorful city lights below. At its surface, it’s a beautiful image, but the underlying story reveals the smog-stressed trees pictured in the

San Bernardino National Forest near Los Angeles, Calif., are suffering the ill effects of too much development, just like the citizens in the city below.

“Many environmental issues revolve around the choices we regularly make: where we live, the vehicles we drive, the food we eat and the products we buy,” says Essick. “These are ordinary parts of daily life, but they can also be the subject matter for an artist with a keen vision.”

Daily life in the industrialized world involves the use of high-tech electronic products such as computers, cell phones and cameras. What happens to these products once they’re discarded? Essick traveled to Ghana, where high-tech trash, or e-waste, from Europe and the United States was being illegally recycled. Obsolete electronics can contain valuable metals. Some e-waste is properly recycled, but some ends up in poor countries where workers pick apart the waste in conditions that are often unsafe and

environmentally unfriendly. In Ghana, Essick made an image of a 10-year-old boy carrying a pile of electronic wires on his head walking between the shantytown where he lived and the lot where the wires were stripped for copper and the plastic burned. For this story, a blunt, literal picture serves as a wake-up call to consumers in the technology-driven industrialized world that the choices they make can have far-reaching consequences.

Shooting stories involving environmental degradation, unsustainable development and the impacts on people and wildlife can take a toll on even the best of hardened photojournalists. Essick says that he has noticed a pattern in his work over the last 25 years. He’ll work on several intense issue-driven stories, and then take a break with a pure nature story, highlighting wild places for their beauty, ecological significance and power of renewal for the human spirit—including his own. Growing up



ABOVE: With over 100,000 visitors each year, Torres del Paine National Park, Patagonia, Chile, has 598,000 acres of varied terrain, including mountains, plains and ice fields. Here, Essick showcases the beauty of a sunset over a glacial lake surrounded by granite peaks.

in Southern California, he spent a lot of time backpacking, river rafting, and exploring the deserts, mountains and beaches of his backyard. At age 56, he can look back and see how his childhood gave him the ability to comprehend certain truths about nature and also prepared him for his continued exploration of the world. Perhaps it's his deep love of nature that drives him to make photographs that reveal unpleasant truths.

"What I've learned from scientists I've worked with over the years is that changes are happening quickly on Earth and pushing certain ecosystems to the brink, making them fragile," he says. "It's my belief that now, more than ever, journalists should try to shed a little light in the dark corners, however difficult that task can be."

Covering environmental issues can be incredibly challenging because, often, the stories involve people who aren't willing to talk, let alone be photographed. It can be difficult to gain access to places where degradation has occurred, and more often than not, a promising lead to a person or place ends up at a closed door. But this just motivates Essick to persevere to find people who will cooperate, which makes the final photographs that much more rewarding.

"I approach each story with clear eyes and a strong heart," he says. "I present the issues, and my pictures can serve as harbingers of what might be coming if we don't make some changes."

Essick changed the way he viewed his own work after becoming a father. Early in his career, he worked to create his own style, earn recognition through contests and establish himself as a respected photojournalist. After his son was born, he started viewing his work for the benefit of future generations, who, he says, "will inherit a complex world of wonder, promise and loss." He hopes that his pictures will have staying power and will inspire, just like the photos of Ansel Adams inspired him and others of his generation.

"When I first started in photography, I thought Ansel Adams was the embodiment of what a photographer and a productive citizen could and should be," he says. "His inspiration came from the mountains, and he viewed wild landscapes as a necessary part of humanity. He became an advocate for environmental causes because we were losing our wild places."

"Today, the science is telling all of us that we need to turn off our selfish genes and work together for the good of

humanity and for the diversity of all the life that surrounds us," Essick continues. "That decision takes courage, which, at times, has been in short supply. But the strength I've witnessed in others working on behalf of the planet gives me hope that we can build a better world." OP



Peter Essick is a frequent contributor to National Geographic magazine, producing 40 stories over the past 25 years. To view more of his work, and to buy his book, Our Beautiful, Fragile World, visit www.peteressick.com. Amy Gulick is a Fellow with the International League of Conservation Photographers and a frequent contributor to OP. Visit www.amygulick.com.



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With advanced sensors and processors, top-shelf image quality and a cool factor that makes DSLRs seem clunky, the best mirrorless cameras available today might inspire you to make a change

Mirrorless interchangeable-lens cameras came into being because many felt that DSLRs were too bulky to carry around much of the time. The idea was to provide DSLR image quality in a noticeably smaller, lighter package. This was done by putting DSLR image sensors into smaller bodies, and that was done either by using a flat, compact point-and-shoot camera form factor or by removing the mirror box and prism finder from a DSLR-style form factor, replacing the latter with an electronic viewfinder.

Most of the early mirrorless cameras were aimed mainly at people moving up from a point-and-shoot, who wanted the flexibility of interchangeable lenses and the boost in image quality inherent in larger

sensors. Today, though, there are mirrorless models aimed squarely at the DSLR user—cameras that can do almost everything a DSLR can do, and often more. About the only place in outdoor photography these top mirrorless cameras might fall short is bird-in-flight photography (the AF systems aren't quite there yet for that, the electronic viewfinders aren't ideal for tracking quick, erratically moving birds, and the native lenses aren't long enough). But for landscapes, flowers, street photography and wildlife other than birds, mirrorless cameras can easily hold their own, if not beat, DSLRs—and the compact mirrorless systems are much easier to cart around to wherever you're going to shoot.

The main difference between the “mini-DSLR”-style mirrorless cameras and actual DSLRs (besides the latter’s greater bulk) is the electronic viewfinder (EVF) that replaces the DSLR’s optical viewfinder. The EVF shows you the image produced by the image sensor, as it will be recorded, allowing you to see the effects of white balance, exposure compensation, special effects and the like live in the viewfinder. EVFs also can display more information, including histograms and focus peaking (which highlights in-focus edges in the image for easier manual focusing), and you can zoom the image to really examine it. (Of course, all this applies to the external LCD monitor, too, but the EVF provides it with the camera held comfortably up to your eye for stable shooting, especially with long lenses.) EVFs also provide more eyepiece dioptic correction—where you might need glasses with your DSLR, you might not with an EVF camera. Some EVFs (and external LCD monitors) can tilt and rotate, making for easy selfies and low- or high-angle shooting—an SLR finder doesn’t do that.

Of course, another way of looking at it is that what the EVF shows is essentially a relatively low-res video on a half-inch screen, while a DSLR finder shows the image from the lens with no electronic interference. DSLR optical finders are always on, and don’t drain the camera’s battery. Longtime DSLR (and film SLR) users will need some time to get used to an EVF, but many have come to prefer the EVF for the benefits noted. Unless you’re a bird-in-flight specialist, you probably should be more concerned about other camera features than whether a potential camera purchase has an EVF or an optical SLR finder.



Fujifilm X-T1

Fujifilm’s only “mini-DSLR”-style mirrorless model, the flagship X-T1 is based around the company’s unique X-Trans CMOS II image sensor, which differs from conventional Bayer arrays by using a more random arrangement that positions red, green and blue pixels in every horizontal and vertical row. This minimizes moiré and false colors, allowing Fujifilm to do away with the sharpness-robbing optical low-pass filter required by most Bayer-sensor cameras. The 16.3-megapixel X-Trans CMOS II, introduced in the X-E2, incorporates more than 100,000 phase-detection pixels for quicker autofocus in good light (the camera automatically switches to contrast-based AF in dim light). The body is made of die-cast magnesium, with milled aluminum dials and extensive weather sealing.

The camera can function in temps as cold as -10° C.

Featuring “the world’s highest magnification” (0.77X, 35mm equivalent) for a digital camera, the X-T1’s 2360K-dot OLED EVF has a superquick lag time of just 0.005 seconds, with four display modes. Digital Split Image and focus peaking make manual focusing easy. There’s also a tilting, 3.0-inch, 1040K-dot LCD monitor. The X-T1 can shoot at 8 fps with focus tracking (3 fps with full-time Live View). It’s also the first compact system camera (CSC) that’s compatible with SDXC UHS-II memory cards, with data writing in continuous mode that’s about twice as fast as that of a conventional SD card. This also helps with video, as the X-T1 can do both 720 HD and 1080 full HD at 60p, as well as 30p.

One-touch WiFi connection makes it quick

and easy to transfer images to a smartphone or computer, and geotag images (via the smartphone’s GPS). Using the Fujifilm Camera Remote App, you even can operate the camera from your smartphone or tablet.

A recent firmware update (ver.3.00) includes some features of particular interest to outdoor photographers (in the X-T1 Graphite Silver edition only): Natural Live View, which makes the EVF image look “real”; 1/32,000 electronic shutter (handy when trying

to shoot a fast lens wide open for selective-focus effects in daylight); and Completely Silent Electronic Shutter (useful when you don’t want to disturb nearby wildlife).

Currently, 18 X-mount lenses are available, from 14mm to 50-230mm, with five WR weather-resistant models. The optional VG-XT1 vertical battery grip is also weather-sealed. The body measures 5.0x3.5x1.8 inches and weighs 13.7 ounces. Estimated Street Price: \$1,199.95.

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Olympus OM-D E-M1	16.3 MP	MFT	200-25600	2360K	3.0-in., 1037K TiTo	1080/30p	Yes	SD/HC/XC	5.1x3.7x2.5 in.	15.6 oz.	\$1,299
Panasonic LUMIX DMC-GH4	16.05 MP	MFT	200-25600	2359K	3.0-in., 1036K TiTo	4K/30	Yes	SD/HC/XC	5.2x3.7x3.3 in.	16.9 oz.	\$1,499
Samsung NX1	28.2 MP	APS-C	100-25600	2360K	3.0-in., 1036K To	4K/30	Yes	SD/HC/XC	5.5x4.0x2.6 in.	19.5 oz.	\$1,299
Sony a7 Mark II	24.3 MP	FF	100-25600	2359K	3.0-in., 1229K Ti	1080/60p	Yes	MS & SD/HC/XC	5.0x3.8x2.4 in.	19.6 oz.	\$1,499

DSLRs (for quick comparison, equivalent price range)

Canon EOS 70D	20.2 MP	APS-C	100-12800	SLR	3.0-in., 1040K TiTo	1080/30p	Yes	SD/HC/XC		5.5x4.1x3.1 in.	23.8 oz.	\$1,199
Canon EOS 6D	20.2 MP	FF	100-25600	SLR	3.0-in., 1040K	1080/30p	Yes	SD/HC/XC		5.7x4.4x2.8 in.	24.0 oz.	\$1,699
Nikon D7200	24.2 MP	APS-C	100-25600	SLR	3.2-in., 1229K	1080/30p	Yes	SD/HC/XC		5.4x4.2x3.0 in.	23.9 oz.	\$1,199
Nikon D610	24.3 MP	FF	100-6400	SLR	3.2-in., 921K	1080/30p	No	SD/HC/XC		5.6x4.4x3.2 in.	26.8 oz.	\$1,499
Pentax K-3 II	24.35 MP	APS-C	100-51200	SLR	3.2-in., 1037K	1080/60i	Flucard	SD/HC/XC		5.2x3.9x3.1 in.	25.3 oz.	\$1,099
Sony SLT-A77 Mark II	24.3 MP	APS-C	100-25600	2359K	3.0-in., 1229K Ti	1080/60p	Yes	MS & SD/HC/XC		5.6x4.1x3.1 in.	22.8 oz.	\$899

Ti = tilting monitor

To = touch-screen monitor

* indicates estimated street price



Olympus OM-D E-M1

Olympus offers three “mini-DSLR”-style cameras (four, with the recent introduction of the OM-D E-M5 Mark II, successor to the original E-M5, Olympus’ first mirrorless camera with a mini-DSLR form factor). Despite the new camera’s sensor-shift high-resolution mode, the E-M1 remains the flagship.

The E-M1 introduced a new 16.3-megapixel Live MOS image sensor with no low-pass filter, providing on-chip DUAL FAST AF, with 37-point phase-detection AF used when a Four Thirds System lens is attached and 81-point contrast AF when a Micro Four Thirds lens is attached. (When continuous AF is selected with an MFT lens, both systems work together to improve tracking performance.) A TruePic VII image processor with Fine Detail Processing II technology optimizes image quality for still images and video.

Olympus’ excellent 5-axis sensor-shift image-stabilization system

compensates for yaw, pitch, roll, and vertical and horizontal shift, and works with all lenses. (The Panasonic GH4, Fujifilm X-T1 and Samsung NX1 don’t have in-body sensor-shift stabilization, instead relying on stabilizers in some of their lenses.) The E-M1’s magnesium-alloy body is dust-, splash- and freeze-proof. Built-in WiFi lets you upload images to your smartphone wirelessly, operate the camera from your smartphone and geotag images using the smartphone’s GPS.

A big electronic viewfinder features 2.36 million dots and 1.48X (0.74X 35mm-camera equivalent) magnification, with a 0.029-second display time lag. There’s also a 3.0-inch, 1037K-dot tilting touch-screen LCD monitor. For manual focusing, focus peaking is available. The E-M1 can

shoot at 10 fps (6.5 fps with continuous AF), and a big buffer lets you shoot up to 41 RAW or 95 JPEG images in H advance mode. Video capabilities include 1080p, 720p and 640x480, all at 30 fps. Sound is stereo via built-in or external mic. You can record in MOV or AVI format. Other features include 12 Art Filters, 8 Art Effects, in-camera HDR, an intervalometer and multiple-exposure capability.

Like all Micro Four Thirds System cameras, the E-M1 can use all MFT lenses. Olympus currently offers 20, from a 9mm fisheye and 9-18mm superwide zoom to a 75-300mm supertele (with the MFT sensor’s 2X focal-length

factor, this provides focal lengths equivalent to 18mm through 600mm on a 35mm camera). Also, just about any lens for which an adapter is available can be used on MFT cameras, with manual focusing. The HLD-7 vertical grip provides easy vertical-format shooting, and holds an extra battery for added shooting capacity. The body measures 5.1x3.7x2.5 inches and weighs 15.6 ounces. Estimated Street Price: \$1,299.99.

www.getolympus.com

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Go to outdoorphotographer.com for more in-depth articles on new cameras and camera technology, as well as comparison charts on available models.



Panasonic LUMIX DMC-GH4

Panasonic's first mirrorless interchangeable-lens camera (and the first mirrorless interchangeable-lens camera on the market) was a "mini-DSLR" type, the G1. Since then, Panasonic has produced more mini-DSLR models than anyone. The most recent is the flagship LUMIX DMC-GH4, which combines excellent video and still capabilities.

The 16.05-megapixel Digital Live MOS sensor and Venus Engine with quad-core CPU make possible 4K video—4096x2160 cinema 4K at 24 fps and 3840x2160 QFHD 4K at 30 fps in MOV/MP4 format. Files are stored

on SD/SDHC/SDXC media; Panasonic recommends UHS Speed Class 3 for 4K video (the camera can shoot 200 Mbps All-Intra or 100 Mbps IPB). The GH4 can stream real-time 4:2:2 8- or 10-bit video to an external monitor or recorder like the optional DMW-YAGH pro audio-video interface unit. The camera can also do 1080p full HD video at 60, 30 and 24 fps, as well as 720p HD and 640x480 SD video. A 2359K-dot OLED electronic viewfinder provides convenient eye-level operation for both still and video (with 1.34X magnification, equivalent to 0.67X on a full-frame

camera), while the free-angle 3.0-inch, 1036K-dot OLED touch-screen monitor makes for easy odd-angle shooting.

As a still camera, the GH4 can deliver 14-bit RAW, as well as JPEGs, at 16 megapixels, at up to 12 fps (in AFS mode) or 7.5 fps with continuous autofocus. Using the electronic shutter, shooting rates as high as 40 fps are possible. Normal ISO range is 200-25,600, with 100 also available in expanded mode. Quick contrast-based AF featuring DFD (Depth from Defocus) technology is available for both still and video shooting, with focus as quick as 0.07 seconds.

Built-in WiFi with NFC provides easy connection to your smartphone or tablet, and the Panasonic Image App lets you operate the camera remotely from your

smart device and even embed geotagging data in an image after shooting.

Like all Micro Four Thirds System cameras, the GH4 can use all MFT lenses. Panasonic offers 22, from an 8mm fisheye to a 100-300mm supertelephoto (with the MFT sensor's 2X focal-length factor, this provides focal lengths equivalent to 16mm through 600mm on a 35mm camera). The optional LED1 video light and BGGH3 battery grip add versatility.

The rugged die-cast magnesium-alloy body is splash- and dustproof, and the shutter has been tested to 200,000 cycles. Mechanical shutter speeds run from 60 to 1/8000 sec., with flash sync up to 1/250 sec. The body measures 5.2x3.7x3.3 inches and weighs 16.9 ounces. Estimated Street Price: \$1,499.99.

shop.panasonic.com



Samsung NX1

Samsung has been making "mini-DSLR"-style mirrorless cameras (as well as "flat-style" ones) for quite some time. Their new flagship NX1 features the highest-pixel-count APS-C sensor, and the only backside-illuminated one, a 28.2-megapixel unit that gave it the top score among APS-C mirrorless cameras in DxOMark.com's sensor ratings. BSI puts the wiring on one side of the sensor and the light-sensitive elements

on the other for a better fill factor—and better image quality. Samsung's 14-bit DRIMe V processing also enhances image quality.

The NX1 can do 4K video, 3840x2160 UHD 4K at 30 fps directly to the SD card in the camera, no external recorder needed, and 4096x2160 4K at 24 fps to an external recorder. The NX can also do 1080 full HD, 1280x720 HD and 640x480 SD at 60, 30 and 24 fps, saving to a card or an external device. There's a built-in stereo microphone,

plus jacks for an external mic and headphones.

The hybrid NX AF System III features 205 on-sensor phase-detection points (153 of them cross-type), plus 209

contrast-detection points, working together to bring you the speed of PDAF and the accuracy of CDAF. A 221-segment TTL metering system, ISO settings from

100-25,600 (expandable to 51,200) and shutter speeds from 30 to $\frac{1}{8000}$ sec. (with flash sync up to $\frac{1}{250}$ sec.) provide lots of exposure control. The NX1 can shoot at up to 15 fps.

A 3.0-inch, 1036K-dot tilting touch-screen Super AMOLED monitor complements the 2360K-dot XGA OLED eye-level electronic

viewfinder. It's all contained in a durable, weather- and dust-resistant magnesium-alloy body. The 16-50mm $f/2$ -2.8 S kit zoom also features a splash- and dust-resistant design and has an ultraprecise stepping AF motor.

Built-in WiFi and Bluetooth, with easy connection via NFC, make

it simple to transfer images wirelessly to a smartphone or tablet, or geotag images using the smartphone's GPS. With USB 3, there's superquick wired transfer of images.

Like all NX-system cameras, the NX1 can use all NX lenses; there's currently 17, from a 10mm fisheye

and 12-24mm superwide zoom to 18-200mm and 50-200mm zooms. The body measures 5.5x4.0x2.7 inches and weighs 19.4 ounces. Estimated Street Price: \$1,299.99; \$2,499.99 (16-50mm $f/2$ -2.8 S zoom, battery grip, extra battery, charging cradle).

www.samsung.com

Sony a7 Mark II

Sony has been producing mirrorless interchangeable-lens cameras since 2010, but it was in 2013 that they shook up the mirrorless world by introducing the first full-frame model—two, actually—the 24-megapixel a7 and 36-megapixel a7R. In spring 2014, Sony added the low-light/4K video specialist a7S model, and now have introduced the successor to that first a7 model, the 24.3-megapixel a7 Mark II. It's state of the art, and brings full-frame into our price category.

The a7 Mark II is the first full-frame camera with 5-axis SteadyShot INSIDE sensor-shift image stabilization, which compensates not only for up-down and left-right camera shake, but also pitch, yaw and roll. This feature works with all lenses, and even in conjunction with stabilization built into Sony OSS lenses, but note that with some lenses, especially manual-focus third-party lenses, you don't get all five axes of stabilization.

Like the original a7, the a7 Mark II's Hybrid AF

system uses 117 on-sensor phase-detection AF points (77 in APS-C mode) and 25 contrast-detect AF points, but it features new algorithms that makes it 30% faster and 1.5X more accurate than the original a7's. AF and auto exposure are provided during the camera's fastest 5 fps shooting rate. The a7 Mark II also starts up 40% faster than the original a7.

The Sony Bionz X processor allows for enhanced video capability, including 1920x1080 at 60p and 50 Mbps using the fast XAVC S codec, Picture profiles and Sony's S-Log2 gamma for wide dynamic range. The 2359K OLED EVF provides easy eye-level viewing for stills and video, while the 3.0-inch, 1229K-dot LCD monitor tilts 107° up and 41° down, and provides manual-focus peaking and video zebras.

All of the a7 cameras share the same compact "mini-DSLR" form factor, and take Sony FE-mount full-frame lenses (of which there are currently 10, from a 16-35mm $f/4$ to a 24-240mm $f/3.5$ -6.3, with more on

the way). You can also use E-mount (NEX) lenses, but they were designed for APS-C sensors and will vignette (you can set the camera to crop to APS-C format automatically when an E lens is mounted to avoid this). You can also use Sony A-mount DSLR lenses via the LA-EA2 and LA-EA4 adapters (the latter has a built-in PDAF system featuring Sony's TMT semitranslucent mirror technology), and just about any other lens for which an adapter is available. The body measures 5.0x3.8x2.4 inches and weighs 19.6 ounces. Estimated Street Price: \$1,499.99.

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Aperture Academy New Locations And Sojourn Series Expansion | 2015 |

The Aperture Academy has added exciting new international adventure workshops to their wildly popular Sojourn Series of on-location expeditions. Aperture Academy is one of the largest private photography schools, expanding their class schedule in 2015 to over 200 classes and workshops around the globe. Their new Sojourn adventures, Banff Canadian Rockies (seven days) and The Scottish Highlands (nine days), joins Colors of Costa Rica, Grizzly Bears of Alaska, Iceland, American Southwest and Africa expeditions. U.S. workshops visit over 30 locations including the very popular Arches, Canyonlands, Yellowstone, Grand Teton and Yosemite National Parks, day and night shooting, beginner to pro levels. Aperture Academy's 2015 schedule ranges from photography basics to advanced applications; workshops go from day to night, from natural light portraiture to star trails and light painting.

For more information, contact: Aperture Academy, (408) 369-8585, info@apertureacademy.com, www.apertureacademy.com.

Lakota Wolf Preserve

| September to April 2015 |

Photographing wildlife can be an amazing experience, and capturing the perfect scene only adds to that accomplished feeling. Unfortunately, your



Jim Stein

chances of capturing decent pictures of wolves in their natural wooded setting can be near impossible. But while on a guided photography tour at the Lakota Wolf Preserve, this feat is attainable. Come enjoy two hours snapping shots of four different packs of wolves as they wander freely throughout acres of New Jersey mountainside. Your guide will work with the animals to get them in the best possible lighting and location for stunning, high-quality photos through

open fencing portals. Photo shoot tours are offered from September through April to offer the best seasonal scenery. Watching these amazing animals up close is worth the trip alone, but being able to capture their beauty through a camera lens in their native landscape is a photographer's dream.

For more information, contact: Jim Stein, Lakota Wolf Preserve, (908) 496-9244, www.lakotawolf.com, jim@lakotawolf.com.

Photograph The Sierras

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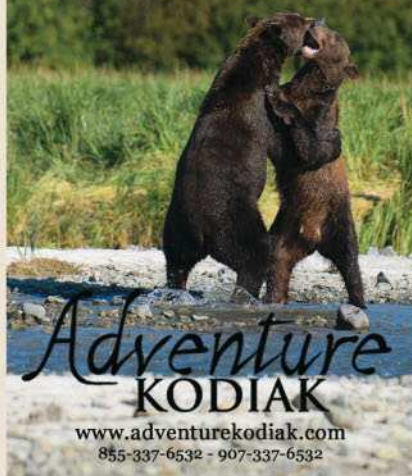


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For more information, contact: (425) 968-2884, charles@charlesneedlephoto.com, www.charlesneedlephoto.com.

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conditions or is outfitted to do so). Or you might be afraid your presence would frighten off a wildlife subject. For these times, a remote control is the answer.

Remote Controls

The simplest remote control is a cable release. It allows you to trip the shutter without touching the camera and (depending on the length of the cable) without being right by the camera.

Infrared remote controls consist of a transmitter, which you hold, and a receiver, which attaches to the camera. They allow you to fire the shutter from a distance, but require line-of-sight: The receiver must be able to “see” the transmitter’s IR signal.

Radio remote controls work at greater range than infrared ones and are omnidirectional—the receiver doesn’t have to “see” the transmitter for the system to work. Advanced radio controls have multiple channels so you can operate several cameras—or assure that another photographer in the vicinity won’t accidentally fire yours.

These remotes let you fire the camera from a distance, which can be handy, especially in harsh weather (you can stay in your car or tent) or when photographing shy wildlife. The remotes also let you trip the shutter exactly when you want, while the self-timer’s delay might cause you to miss that decisive moment.

Intervalometers set the camera to fire at periodic intervals to record time-lapse events such as a flower opening or clouds passing by. You can select the interval, number of shots and starting time. Some

cameras have built-in intervalometers; if yours doesn’t, a number of accessory intervalometers are available. Some newer cameras will turn the time-lapse sequence into a video clip, in-camera.

That’s the traditional stuff. There are also remotes that fire the camera when they detect sound, motion or even lightning (some units do all three). You can use these to set up a remote camera and have it fire when an animal passes in front of the lens, when a clap of thunder occurs or when lightning is detected.

Today, we even have systems that turn your smartphone or tablet into a remote control for your camera. These use WiFi (or, more rarely, Bluetooth) to connect the camera to the smart device wirelessly. You then can see the live image on the smart device’s monitor, adjust camera settings and trip the shutter. You can also upload images from the camera to the smart device, then to web-based sharing sites.

Here’s a sampling of remote systems available today.

Camera Manufacturers’ Apps

Besides third-party products, many camera manufacturers offer apps for their cameras that let you operate the camera remotely from your smartphone or tablet via wireless WiFi connection, as well as upload images from the camera to your smart device. Often, these apps are free downloads. Some cameras have WiFi built in, while others require the purchase of an optional WiFi accessory.

CamRanger is a wireless camera control that lets you operate your camera

Most photos are taken by pressing the camera’s shutter button with one’s finger. This is simple, requires no additional gear, allows for capturing those “decisive moments” and works quite well much of the time. However, there are times when you won’t want to operate this way.

One is to avoid jiggling the camera as you trip the shutter, even with the camera on a tripod. You can use the camera’s self-timer to do this, although its delay will cause you to miss some decisive moments, and you must be at the camera to activate it. With a DSLR, mirror prelock will flip the mirror up out of the light path a bit before the exposure is made, allowing vibrations from the mirror’s movement to subside. Mirrorless cameras don’t have SLR mirrors, of course, so this isn’t a problem. However, the mechanical focal-plane shutter’s first curtain can cause vibrations as it opens to begin the exposure. Some cameras have electronic first shutter curtain (EFSC) mode (sometimes known as silent mode), which uses the sensor as the first curtain, thus eliminating the vibration, and sound, of the mechanical first curtain.

Another time you won’t want to operate the camera by pressing the shutter button is when you wish to operate the camera from afar. For example, it might be cold and damp out, and operating the camera remotely from your car would be good (be sure your camera can handle the

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from up to 150 feet away via your iPhone, iPad, iPod touch or Android device. Just plug the camera into the CamRanger via the provided USB cable and you have an ad-hoc WiFi network to your smart device. You can view the live image, focus by touching the subject on the screen, take and view photos, view full-res images, and set shutter, speed, aperture, ISO, white balance, exposure comp and much more. CamRanger also enables intervalometer/time-lapse, HDR bracketing and focus stacking for enhanced depth of field. It's available for many recent Canon and Nikon DSLRs. Estimated Street Price: \$299.99-\$364.99. **camranger.com**

Manfrotto's new **Digital Director** is the only Apple Certified interface that helps users intuitively manage photo and video workflows, from setting camera controls to sharing pictures, via a tethered iPad application. Consisting of hardware, software (app) and firmware, the Digital

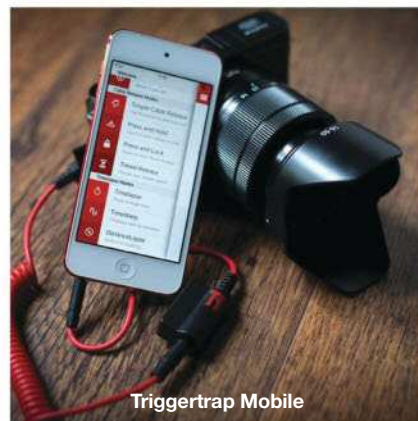
Sanho iUSBportCAMERA2

Director turns the iPad Air into an external monitor, taking full advantage of its high-definition Retina display. Adjust such functions as exposure, ISO, shutter speed, aperture, manual focus, white balance, image quality, focus and drive modes, and battery status, with real-time live-view monitoring and adjustments. There's a live histogram and audio-level display, and you can download images to the iPad, review high-res files and make image adjustments. List Price: \$500. **www.manfrotto.us**



The **Sanho iUSBportCAMERA2** turns your smart device into an advanced wireless remote control and high-resolution viewer for compatible Canon and Nikon DSLRs. It can stream still images to up to 12 mobile devices via WiFi or full HD video to up to five devices. It provides wireless control up to 300 feet from the camera. Features include touch focus, focus stacking, HDR bracketing, long exposures, time-lapse and control of camera settings. The CAMERA2 mounts on the camera's hot-shoe, but is powered by its own rechargeable battery that's good for about eight hours per charge. Estimated Street Price: \$299.95. **www.hypershops.com**

Triggertrap Mobile consists of a free Triggertrap Mobile remote application for iOS and Android, and a Triggertrap Mobile Dongle and Connection Cable Kit, which



Triggertrap Mobile

costs around \$40 for most cameras. It's available for more than 300 camera models from 14 manufacturers. Triggertrap can be set to trip the shutter to sound, vibration or motion, make a variety of time-lapse sequences including star trails, and do long-exposure HDR images and time-lapses. It can also make long exposures of up to 100 hours (assuming the camera can handle that). The app also includes photo calculators, providing information like local sunrise and sunset times, and times of first and last light. **www.triggertrap.com** OP

Hardware Remotes

You don't need a smart device to operate your camera remotely. Dozens of manufacturers offer wired and wireless remote controls that work directly with many popular camera models. The big drawback to non-smart device methods is you can't see the image, but that's how remote photography was done for decades before smart devices and apps were invented.

Camera Manufacturers' Remotes

Most camera companies offer simple wired and wireless remote controls for their cameras: cable releases, infrared remotes and radio remotes. These were designed to function with specific cameras in the manufacturer's line, and operation is straightforward.

Just attach the cable release to the appropriate receptacle on the camera, or connect the receiver of a wireless remote, and you're set to go.

The **Flashpoint Wave Commander** is a low-cost corded remote for most popular cameras that can control all time-related functions: long exposures, delayed exposures, self-timer, time-lapse and interval shooting. It features a large, comfortable button for use as a simple cable release and a backlit LCD status display. Two AAA batteries provide power for more than many thousands of actuations.

The 6.1x1.5x0.7-inch unit is small enough to carry whenever you might want its capabilities. Estimated Street Price: \$39.95. **www.adorama.com**

The **Hähnel Giga T Pro II** is a wireless timer remote control for a wide range of Canon, Nikon, Sony and Olympus/Panasonic cameras (the Canon version will also work with Pentax and Samsung DSLRs). It consists of a transmitter and a receiver—the latter plugs into the camera, the former goes with you. The Giga T Pro II can do time-lapse (with a repeat mode that lets you repeat time-lapse sequences when desired), self-timer and long exposures (the exposure starts when you press the transmitter button and continues until you press it again). The unit works through walls and up to 100 meters (328 feet) from the camera. Both transmitter and receiver have backlit LCD panels. Estimated Street Price: \$99.50. **www.rtsphoto.com**



Hähnel Giga T Pro II



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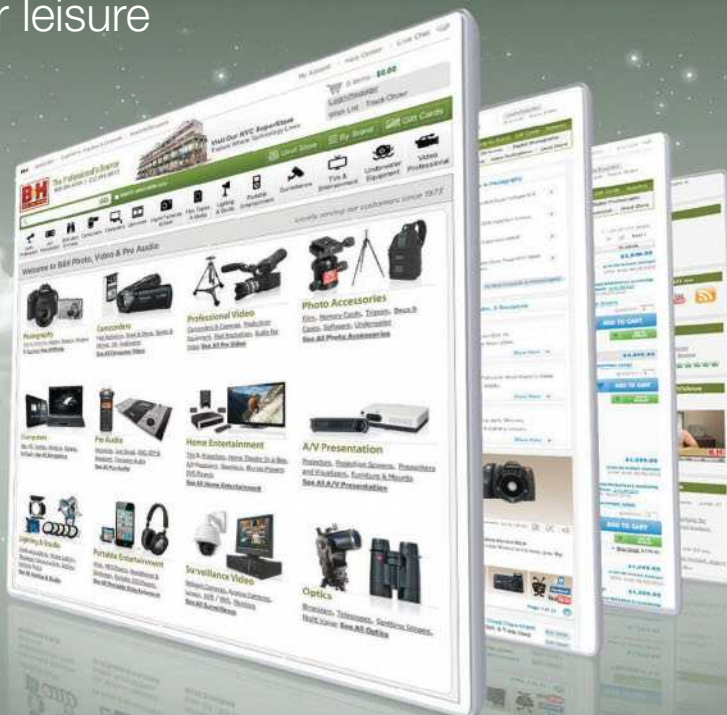
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Nikon 1 J5 Mirrorless System Camera

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23/1.4 XF R.....	899.00	10-24/4 XF R OIS ..	999.00
27/2.8 XF.....	449.00	16-50/3.5-5.6 XC OIS	399.00
35/1.4 XF R.....	599.00	18-55/2.8-4.5 XF R OIS	699.00
55-200/3.5-4.8 XF R LM OIS ..	699.00		
50-230/4.5-6.7 XC OIS ..	399.00		

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Nikon 1 Mirrorless Lenses

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18.5/1.8	186.95	11-27.5/3.5-5.6 AW ..	146.95
32/1.2	896.95	11-27.5/3.5-5.6 ..	186.95
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16/2.4 Pancake	CALL	45/1.8	CALL
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85/1.4 ED SSA	CALL	18-55/3.5-5.6 OIS ..	CALL
12-24/4-5.6 E.....	CALL	18-200/3.5-6.3 ED OIS ..	CALL
16-50/3.5-5.6 ED OIS ..	CALL	20-50/3.5-5.6 ED II ..	CALL
16-50/2-2.8 S ED OIS ..	CALL	50-200/4-5.6 ED OIS II ..	CALL

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Lumix G Vario Mirrorless System Lenses

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20/1.7 II Aspherical	427.99		
25/1.4 Aspherical Leica DG Summilux ..	597.99		
42.5/1.2 Asph. Power OIS Leica DG Noctillon ..	1,597.99		
45-45/3.5-5.6 Asph. Mega OIS Leica DG Macro-Elmarit ..	897.99		
7-14/4.0 Asph.....	949.95	12-35/2.8 X Asph.	997.99
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50/1.4 Carl Zeiss ZA (72) ..	1,498.00		
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18-55/3.5-5.6 DT SAM II (55) ..	218.00		
18-135/3.5-5.6 (62) ..	498.00		
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Panasonic Lumix DMC-GH4 4K Mirrorless System Camera

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- Full HD 1080i/p Video Recording
- Continuous Shooting up to 8.3 fps
- Weather-Sealed Magnesium Alloy Body

Body Only #PEK3



23 Mega Pixels

SONY Alpha A6000 Mirrorless System Camera

- 3.0" Tilting LCD • Uses Sony E-mount Lenses
- SDHC, SDXC, MS Pro Duo, MS PRO HG Duo Card Slot • Up to 11 fps Shooting • ISO 25600
- Full HD 1080i/p AVCHD Video at 24/60 fps
- Built-In Wi-Fi Connectivity with NFC
- Available in Black or Silver

Kit with 16-50mm OSS Lens #SOA6000*



24 Mega Pixels

SONY Alpha A7II Mirrorless System Camera

- Full Frame Exmor CMOS Sensor • 3.0" Tilttable LCD
- SDHC, SDXC, MS Pro Duo, MS PRO HG Duo Card Slot
- Weather-Resistant Magnesium Alloy Body
- Built-In Wi-Fi and NFC • 5-Axis SteadyShot INSIDE Stabilization • Full HD XAVC S Video & S-Log2 Gamma

Body Only #SOA72

Kit with 28-70mm OSS Lens #SOA72K



24 Mega Pixels

SONY Alpha SLT-A58 DSLR Camera

- 2.7" Tilting LCD • Uses Sony Alpha mount Lenses
- SDHC, SDXC, MS Pro Duo, MS PRO HG Duo Card Slot • Full HD 1080i/p Video at 60 or 24fps
- 5fps Full Resolution Continuous Shooting
- SteadyShot INSIDE Image Stabilization
- ISO 100-16000 with Noise Reduction

DT 18-55mm SAM II Lens #SOSLTA58K



20 Mega Pixels

SONY a77 II DSLR Camera

- 3.0" 3-Way Tilting LCD • 12fps Shooting
- Uses Sony Alpha mount Lenses
- Full HD 1080p Video Recording at 60 fps
- SDHC, SDXC, MS Pro Duo, MS PRO HG Duo, XC-HG Duo Card Slot • ISO 25600
- Built-In Wi-Fi Connectivity with NFC

Body Only #SOA772



24 Mega Pixels

LENSES AND FLASHES for DSLR & Mirrorless Cameras

TAMRON

Six-Year Warranty

DI for both digital and film SLR cameras

DI-II for Digital SLRs Only DI-III for mirror-less cameras Only

Rebates Expire 6-30-15

	C = Canon	N = Nikon	P = Pentax	SA = Sony Alpha	SE = Sony E Mount			
** Price After Rebate								
DI-II	60mm f/2.0 LD IF Macro (55ø)	C, N, SA					524.00	
DI	90mm f/2.8 Macro (55ø)	C, N, P, SA					499.00	
DI	90mm f/2.8 SP Macro VC USD (58ø)	C, N, P, SA					749.00	
DI	180mm f/3.5 LD IF Macro (72ø)	C, N, SA					739.00	
DI-II	10-24/3.5-4.5 (77ø)	C, N, P, SA					499.00	
DI-II	16-300/3.5-6.3 VC PZD (67ø)	C, N, SA				\$50	579.00**	
DI-II	17-50/2.8 XR LD IF Asph. (67ø)	C, N, P, SA					499.00	
DI-II	17-50/2.8 XR VC LD IF Asph. (67ø)	C, N					649.00	
DI-II	18-200/3.5-6.3 (62ø)	C, N, P, SA					199.00	
DI-III	18-200/3.5-6.3 VC (62ø)	C, N, P, SA			SE Black or Silver		739.00	
DI-II	18-270/3.5-6.3 VC PZD (62ø)	C, N, SA				\$100	349.00**	
DI	24-70/2.8 VC USD (82ø)	C, N, SA				\$100	1,199.00**	
DI	28-75/2.8 XR (67ø)	C, N, P, SA					499.00	
DI	28-300/3.5-6.3 XR LD (62ø)	C, N, P, SA					419.00	
DI	28-300/3.5-6.3 VC PZD (67ø)	C, N, SA					849.00	
DI	70-200/2.8 LD IF Macro (77ø)	C, N, P, SA					769.00	
DI	70-200/2.8 SP VC USD (77ø)	C, N, SA				\$100	1,399.00**	
DI	70-300/4-5.6 LD Macro (62ø)	C, N, P, SA					199.00	
DI	70-300/4-5.6 VC USD (62ø)	C, N, SA				\$100	349.00**	
DI	150-600/5-6.3 VC USD (95ø)	C, N, SA					1,069.00	
	1.4x SP AF Pro Teleconverter	C, N					224.00	
	2x SP AF Pro Teleconverter	C, N					254.00	

ZEISS Touit Mirrorless Lenses

These fully-compatible lenses with autofocus expand the capabilities of both the Sony NEX and Fujifilm X camera systems with outstanding optical quality.

	Fujifilm X	Sony NEX	Price
12mm f/2.8 (67ø)	#ZET2812X	#ZET2812E	999.00
32mm f/1.8 (52ø)	#ZET1832X	#ZET1832E	720.00
50mm f/2.8M (52ø)	#ZET5028MX	#ZET5028ME	999.00

Tokina

DX – for Digital SLRs Only FX – Designed for full frame DSLRs

	Canon EOS	Nikon AF	Rebate	Final
Rebates Expire 6-30-15 ^ Price After Rebate				
FX 100/2.8 Pro D Macro (52ø)	#T010028PCAF	#T010028PNAF	—	379.00
DX 10-17/3.5-4.5 ATX Fisheye	#T0101735CAF	#T0101735NAF	—	549.00
DX 11-16/2.8 Pro II (77ø)	#T0111628PCN	#T0111628PNI	\$30	449.00^
DX 11-20/2.8 Pro (82ø)	#T0112028PDXC	#T0112028PDN	—	599.00
DX 12-28/4.0 Pro (77ø)	#T012284DXC	#T012284DXN	—	449.00
FX 16-28/2.8 Pro	#T01628FXC	#T01628FXN	\$40	589.00^
FX 17-35/4 Pro (82ø)	#T01735F4FCX	#T01735F4FXN	—	449.00

SIGMA

DC – for Digital SLRs Only DG – Optimized for Digital SLRs DN – Designed for Mirrorless Cameras.

H – HSM Model with Canon, Nikon, Sigma	Mount	SKU #	Rebate	Price
DC 4.5/2.8 EX Circular Fisheye HSM R	C, N, P, SI, SA	#SI4528BX*	—	899.00
DC 8/3.5 EX Circular Fisheye R	C, N, SI, SA	#SI835*	\$50	849.00**
DC 10/2.8 EX Fisheye HSM R	C, N, SA	#SI1028EXDC*	—	649.00
DC 15/2.8 EX Diagonal Fisheye R	C, N, P, SA	#SI1528DG*	—	609.00
DN 19/2.8 (46ø) Black or Silver	MFT, SE	#SI1928DN*	—	199.00
DG 20/1.8 EX DF RF Aspherical (82ø)	C, N, SA	#SI2018*	—	629.00
DG 24/1.8 EX DF Asph. Macro (77ø)	C	#SI2418MCAF	—	549.00
DG 28/1.8 EX DF Asph. Macro (77ø)	C	#SI2818MCAF	—	449.00
DN 30/2.8 (46ø) Black or Silver	MFT, SE	#SI3028DN*	—	199.00
DC 30/1.4 HSM (62ø)	C, N, P, SI, SA	#SI3014DCHSM*	—	499.00
DC 35/1.4 HSM (67ø)	C, N, P, SI, SA	#SI3514*	—	899.00
DG 50/1.4 EX HSM (77ø) H	C, N, SA	#SI5014*	\$100	399.00**
DG 50/1.4 HSM (77ø) H	C, N, SI, SA	#SI5014A*	—	949.00
DG 50/2.8 EX Macro (55ø)	C, N	#SI5028MDG*	—	369.00
DN 60/2.8 (46ø) Black or Silver	MFT, SE	#SI6028DN*	\$30	209.00**
DG 70/2.8 EX Macro (62ø)	N, P	#SI7028MDG*	—	499.00
DG 85/1.4 EX HSM (77ø)	C, N, P, SI, SA	#SI8514*	—	969.00
DG 105/2.8 EX Macro OS HSM (62ø)	C, N, SI, SA	#SI10528MDG*	\$300	669.00**
DG 150/2.8 EX APO Macro OS HSM (72ø)	C, N, SI, SA	#SI15028AM0*	—	1,099.00
DG 180/2.8 EX APO Macro OS HSM (86ø)	C, N, SI, SA	#SI18028AM0*	—	1,699.00
DG 300/2.8 APO EX HSM (46ø Rear)	C, N, P, SI, SA	#SI30028DG*	—	3,399.00
DG 500/4.5 APO EX HSM (46ø Rear)	C, N, P, SI, SA	#SI50045DG*	—	4,999.00
DC 8-16/4.5-5.6 HSM	C, N, S	#SI8164556*	—	699.00
DC 10-20/4.5-5.6 EX HSM (77ø)	C, N, P, SI, SA	#SI102045D*	—	479.00

C = Canon MFT = Micro 4/3 N = Nikon O = Olympus P = Pentax SI = Sigma SA = Sony Alpha SE = Sony E

R – Rear Slip-in Gelatin Filter Slot	Mount	SKU #	Rebate	Price
DC 10-20/3.5 EX HSM (82ø)	C, N, P, SI, SA	#SI102035*	\$150	499.00**
DG 12-24/4.5-5.6 EX Asph. HSM II	C, N, SI, SA	#SI122445*	—	949.00
DC 17-50/2.8 EX OS HSM (77ø)	C, N, P, SI	#SI175028*	\$150	519.00**
DC 17-70/2.8-4.0 OS Mac HSM TSC (72ø)	C, N, P, SI, SA	#SI1770284*	—	499.00
DC 18-35/1.8 HSM (72ø)	C, N, P, SI, SA	#SI183518DC*	—	799.00
DC 18-200/3.5-6.3 OS II HSM (72ø)	SI, SA	#SI1820035*	—	299.00
DC 18-200/3.5-6.3 OS Macro HSM (62ø)	C, N, P, SI, SA	#SI1820035D*	—	399.00
DC 18-250/3.5-6.3 OS Macro HSM (62ø)	C, N, P, SI, SA	#SI1825035M*	\$200	349.00**
DC 18-300/3.5-6.3 OS Macro HSM (72ø)	C, N, P, SI, SA	#SI1830035*	—	579.00
DG 24-70/2.8 EX IF HSM (82ø)	C, N, SI, SA	#SI247028*	\$100	799.00**
DG 24-105/4.0 OS HSM (82ø)	C, N, SI, SA	#SI24105*	—	899.00
DG 50-500/4.5-6.3 APO OS HSM (95ø)	C, N, P, SI, SA	#SI505004563*	\$150	1,509.00**
DG 70-200/2.8 EX APO OS HSM (77ø)	C, N, P, SI, SA	#SI7020028*	\$200	1,199.00**
DG 70-300/4-5.6 Macro (58ø)	C, N, P, SI, SA	#SI703004*	—	169.00
DG 70-300/4-5.6 APO Macro (58ø)	C, N, P, SI, SA	#SI703004DG*	—	179.00
DG 120-300/2.8 OS HSM (105ø)	C, N, S	#SI120300*	—	3,599.00
DG 120-400/4.5-5.6 APO OS HSM (77øR)	C, P, SI	#SI120400*	—	899.00
DG 150-500/5-6.3 APO OS HSM (86ø)	C, N, P, SI, SA	#SI150500*	—	1,069.00
DG 1.4x EX APO Tele-Converter	C, N, S	#SI14XDG*	—	249.00
DG 2x EX APO Tele-Converter	C, N, S	#SI2XDG*	—	299.00

SIGMA FLASHES

	C, N, P, SI, SA	Rebate	Price
DG EF-610 ST	C, N, P, SI, SA	#SIEF610ST*	\$30 135.00**
DG EF-610 Super Flash	C, N, P, SI, SA	#SIEF610*	\$30 225.00**
DG EM-140 TTL Ringlight	C, N, P, SI, SA	#SIEM140DG*	\$30 349.00**



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Canon Digital Rebel T6i DSLR

- 3.0" Vari-Angle Touchscreen
- DIGIC 6 Image Processor
- Uses Canon EF Lenses (1.6x factor)
- SDHC/SDXC Card Slot
- Built-In Wi-Fi • Creative Filters
- Full HD 1080p Video Recording
- 5 fps Shooting & Extended ISO to 25600



**\$50
REBATE!**
24 Mega
Pixels

Rebates Expire 5-30-15	Price	Rebate	Final Cost
Kit with 18-55mm IS STM #CAEDRT6I1855	899.00	\$50	849.99
T6s Kit Kit with 18-135mm IS STM #CAEDRT6SK1	1,199.00	\$50	1,149.00
T5i Kit Kit with 18-55mm IS STM #CAEDRT5IK	799.99	\$150	649.99
T5 Kit with 18-55mm IS II #CAEDRT5K	549.99	\$150	399.99

Canon EOS-70D DSLR

- Dual Pixel CMOS AF with Live View
- DIGIC 5+ Image Processor
- SD/SDHC/SDXC Card Slot
- Uses Canon EF & EF-S Lenses
- 3.0" Vari-Angle Touchscreen
- 7 fps Continuous Shooting
- Built-In Wireless Connectivity
- Full HD 1080p Video



**Up to \$300
REBATE!**
20 Mega
Pixels

Rebates Expire 5-30-15	Price	Rebate	Final Cost
Body Only #CAE70D	1,199.00	\$250	949.00
Kit with 18-55mm STM #CAE70D1855	1,349.00	\$300	1,049.00
EOS 60D Body Only #CAE60D			
EOS 60D Kit with 18-135mm IS #CAE60D18135			

Canon EOS-7D Mark II DSLR

- 3" Clear View II LCD • Native ISO 16000
- Dual Pixel CMOS AF with Live View
- Dual CF and SDHC/XC Card Slots
- Continuous 10 fps Shooting
- Built-In GPS Receiver & Digital Compass
- Full HD 1080p/60 Video & Movie Servo AF



**\$100
REBATE!**
20 Mega
Pixels

Rebates Expire 5-30-15	Price	Rebate	Final Cost
Body Only #CAE7D2	1,799.00	\$100	1,699.00
EOS 7D Body Only #CAE7D			
EOS 7D Kit with 18-135mm IS #CAE7D18135			
EOS 7D Kit with 28-135mm IS #CAE7D28135			

Canon EOS-6D DSLR

- Full-Frame CMOS Sensor • 3.0" LCD
- DIGIC 5+ Image Processor
- Uses Canon EF Lenses
- SD/SDHC/SDXC Card Slot
- Built-In Wi-Fi and GPS Connectivity
- Full HD 1080p with Manual Controls
- Extended ISO Range of 50-102400
- Up to 4.5 Full Resolution FPS
- Built-In HDR & Multiple Exposure Modes



**\$300
REBATE!**
20 Mega
Pixels

Rebates Expire 5-30-15	Price	Rebate	Final Cost
Body Only #CAE6D	1,699.00	\$300	1,399.00
Kit with 24-105mm 1/4L #CAE6D24105	2,299.00	\$300	1,999.00

Canon EOS-5D Mark III DSLR

- 3.2" Clear View High Resolution LCD
- DIGIC 5+ Image Processor
- 61-Point High Density AF
- Uses Canon EF Lenses
- Dual CF, SD Card Slots
- Full HD 1080/30p & 720/60p Formats
- Extended ISO Range (50-102400)
- Built-In HDR & Multiple Exposure Modes



**\$300
REBATE!**
22 Mega
Pixels

Rebates Expire 5-30-15	Price	Rebate	Final Cost
Body Only #CAE5D3	2,799.00	\$300	2,499.00
Kit with 24-105mm L IS #CAE5D324105	3,399.00	\$300	3,099.00

Canon EOS-1Dx DSLR

- Dual DIGIC 5+ Image Processors
- Magnesium Alloy Body
- Eye-Level Pentaprism Viewfinder
- 3.2" LCD Monitor
- Uses Canon EF Lenses
- Dual CF card slots
- 1920 x 1080 HD Video Capture
- Live View Still and Video Recording
- 61-Point High Density Auto Focus



**\$700
REBATE!**
18 Mega
Pixels

Rebates Expire 5-30-15	Price	Rebate	Final Cost
Body Only #CAE1DX	5,999.00	\$700	5,299.00

Canon SLR Lenses and Flashes

Rebates Expire 5-30-15 — Call for Current Rebates & Promotions

EOS Flash System	MAP	Rebate	Final
270EX II	169.99	\$30	139.99
320EX			
430EX II	299.99	\$40	259.99
600EX-RT	549.99	\$50	499.95
MR-14EX II Ringlight	549.99	\$50	499.99
MT-24EX Twin Flash	829.99	\$60	769.99



EF-S Digital Lenses	MAP	Rebate	Final
24/2.8 STM (52ø)	149.99		
60/2.8 USM Macro (52ø)	469.99	\$50	419.99
10-18/4.5-5.6 IS STM (67ø)	299.00	\$50	249.00
10-22/3.5-4.5 USM (77ø)	649.99	\$50	599.99
15-85/3.5-5.6 IS USM (72ø)	799.99		
17-55/2.8 IS USM (67ø)	879.99	\$50	829.99
17-85/4-5.6 IS USM (67ø)	CALL		
18-55/3.5-5.6 IS (58ø) II	199.99		
18-135/3.5-5.6 IS (67ø)	499.99		
18-200/3.5-5.6 IS (72ø)	699.99		
55-250/4-5.6 IS USM II (58ø)	249.99		
55-250/4-5.6 IS STM II (58ø)	299.99		

Not compatible
with full frame
cameras

EF Lenses	MAP	Rebate	Final
20/2.8 USM (72ø)	539.99	\$50	489.99
24/2.8 IS USM (58ø)	599.99	\$50	549.99
28/1.8 USM (58ø)	509.99	\$60	449.99
28/2.8 IS USM (58ø)	549.99	\$50	499.99
35/2 IS USM (67ø)	599.99	\$50	549.99
40/2.8 STM Pancake (52ø)	199.99	\$50	149.99
50/1.8 II (52ø)	125.99		
50/2.5 Macro (52ø)	299.99		
50/1.4 USM (58ø)	399.99	\$70	329.99
MP-E 65/2.8 1x-5x Macro (58ø)	1,049.00		
85/1.8 USM (58ø)	419.99	\$70	349.99
100/2 USM (58ø)	499.99	\$50	449.99
100/2.8 USM Macro (58ø)	599.99	\$50	549.99
400/4.0 DO IS II USM (52ø)	6,899.00		
24-105/3.5-5.6 IS STM (77ø)	599.00		
28-135/3.5-5.6 IS USM (72ø)	CALL		
70-300/4-5.6 IS USM (58ø)	649.99		
70-300/4.5-5.6 DO IS USM (58ø)	1,399.00		
75-300/4.0-5.6 III (58ø)	199.99		
75-300/4.0-5.6 III USM (58ø)	234.99		



TSE MF Lenses	MAP	Rebate	Final
17/4.0 L	2,149.00		
24/3.5 L II	1,899.00		
45/2.8	1,399.00		
90/2.8	1,399.00		

EF "L" Lenses	MAP	Mail-In Rebate	Final
14/2.8 USM II	2,099.00		
24/1.4 II (77ø)	1,549.00		
35/1.4 USM (72ø)	1,479.00	\$100	1,379.00
50/1.2 USM (72ø)	1,449.00	\$50	1,399.00
85/1.2 USM II (72ø)	1,999.00	\$50	1,949.00
100/2.8 IS USM Macro (67ø)	899.99	\$50	849.00
135/2.0 USM (72ø)	999.00	\$50	949.00
180/3.5 USM Macro (72ø)	1,399.00		
200/2.8 USM II (72ø)	749.00		
200/2.0 IS USM (52ø)	5,699.00		
300/4.0 IS USM (77ø)	1,349.00		
300/2.8 IS USM II (52ø rear)	6,099.00		
400/5.6 USM (77ø)	1,249.00		
400/2.8 IS II (52ø rear)	9,999.00		
500/4 IS USM II (52ø rear)	8,999.00		
600/4.0 IS II (52ø rear)	11,499.00		
8-15/4.0 Fish-eye USM	1,249.00		
11-24/4 USM	2,999.00		
16-35/4 IS USM (77ø)	1,099.00	\$100	999.00
16-35/2.8 USM II (82ø)	1,599.00	\$100	1,499.00
17-40/4.0 USM (77ø)	799.99	\$100	699.00
24-70/4.0 IS USM (77ø)	999.99	\$200	799.00
24-70/2.8 IS USM (82ø)	1,899.00	\$100	1,799.00
24-105/4 IS USM (77ø)	999.99		
28-300/3.5-5.6 IS USM (77ø)	2,449.00		
70-200/4.0 USM (67ø)	649.99		
70-200/4.0 IS USM (77ø)	1,199.00	\$100	1,099.00
70-200/2.8 USM (77ø)	1,349.00		
70-200/2.8 IS II USM (77ø)	2,099.00	\$100	1,999.00
70-300/4.0-5.6 IS USM (67ø)	1,349.00		
100-400/4.5-5.6 IS USM (77ø)	1,699.00		

EF Teleconverters	MAP	Rebate	Final
1.4x III	429.99		
2x III	429.99		

Nikon D3300 DSLR

- EXPEED 4 Image Processor
- Full HD 1080p Video Recording
- 3.0" LCD • 5 fps Shooting
- Uses Nikon AF Lenses (1.5x factor)
- SD/SDHC/SDXC Card Slot
- Expandable ISO 25600
- Easy Panorama Mode and Guide Mode
- Nikon Inc. limited warranty included



	Price	Rebate	Final Cost
D3300 is available in Black, Gray or Red			
Kit with 18-55mm VR II #NID33001855*	646.95	\$150	496.95
D3200 Kit Black w/18-55mm VR #NID32001855*	529.95	\$80	449.95

Nikon D5500 DSLR

- EXPEED 4 Image Processor
- Full HD 1080p Video at 60 fps
- 3.2" Vari-Angle Touchscreen
- Uses Nikon AF Lenses (1.5x factor)
- SD/SDHC/SDXC Card Slot
- Built-In Wi-Fi • ISO 100-25600
- Nikon Inc. limited warranty included



	Price	Rebate	Final Cost
D5500 18-55mm Kit is available in Black or Red			
Kit with 18-55mm VR II #NID55001855*	999.95	\$150	849.95
D5300 Kit w/18-55mm VR II #NID53001855*	896.95	\$150	746.95
D5200 Kit with 18-55mm VR #NID52001855*	599.95	\$50	549.95

Nikon D7200 DSLR

- EXPEED 4 Image Processor
- Accepts Nikon AF Lenses (1.5x factor) • 3.2" LCD
- No Optical Low-Pass Filter
- Built-In Wi-Fi with NFC
- Dual SD/SDHC/SDXC Card Slots
- Full HD 1080p Video Recording at 60 fps
- Nikon Inc. limited warranty included



	Price	Rebate	Final Cost
D7200 18-55mm Kit is available in Black or Red			
Body Only #NID7200	1,199.95		
Kit with 18-140mm VR DX #NID720018140	1,699.95	\$200	1,499.95
D7100 Body Only #NID7100	1,199.95	\$300	899.95
D7100 Kit w/18-140mm VR DX #NID710018140	1,696.95	\$300	1,396.95

Nikon D750 DSLR

- FX-Format (Full-Frame) CMOS Sensor
- Uses Nikon AF Lenses • 3.2" Tilting LCD
- EXPEED 4 Image Processor
- SD/SDHC/SDXC Card Slot
- Built-In Wi-Fi Connectivity
- Full HD 1080p Video Recording at 60 fps
- Nikon Inc. limited warranty included



	Price	Rebate	Final Cost
D750 24-120mm VR Kit is available in Black or Red			
Body Only #NID750	2,296.95	\$300	1,996.95
Kit with 24-120mm VR #NID75024120	3,596.95	\$900	2,696.95
D610 Body Only #NID610	1,996.95	\$500	1,496.95
D610 Kit with 24-85mm VR II #NID6102485	2,596.95	\$600	1,996.95

Nikon D810 DSLR

- FX-Format CMOS Sensor
- EXPEED 4 Image Processor
- Optical Low-Pass Filter • 3.2" LCD
- CF & SD Dual Card Slots
- Nikon F Mount Lens Mount
- Full HD 1080p Video at 60/30/24 fps
- External Mic and Headphone Inputs
- Continuous Shooting to 5 fps in FX Mode
- Nikon Inc. limited warranty included



	Price	Rebate	Final Cost
D810 24-120mm VR Kit is available in Black or Red			
Body Only #NID810	3,296.95	\$300	2,996.95
Kit with 24-120mm VR #NID81024120	4,599.95	\$900	3,699.95

Nikon D4s DSLR

- FX-format (full-frame) CMOS Sensor
- 14-Bit RAW Files & 12-Bit RAW S Format
- Full HD 1080p Video at 60 fps
- EXPEED 4 Image Processor
- Compatible with Most Nikkor Optics
- 11 fps Shooting for 200 Shots with AE/AF
- ISO 50-409600 • 3.2" LCD
- CF Type 1 & XQD Compatible
- 1000 Base-T Gigabit Wired LAN Support
- Nikon Inc. limited warranty included



	Price	Rebate	Final Cost
D4s 24-120mm VR Kit is available in Black or Red			
Body Only #NID4s	6,496.95	\$500	5,996.95

Nikon SLR Lenses and Flashes

Rebates Expire 5-30-15 — Call for Current Rebates and Promotions

Nikon Instant Savings on Lenses with purchase of any Nikon DSLR

AF Flashes	Price	Rebate	Final
SB-300	146.95		
SB-500	246.95		
SB-700	326.95		
SB-910	546.95		
R1 Wireless Twin Flash			
R1C1 Wireless Twin Flash System			

DX ED-IF Lenses for Digital Only	Price	Rebate	Final
10.5/2.8 Fish-Eye			
35/1.8 G AF-S (520)	196.95		
40/2.8 G AF-S Micro (520)	276.95		
85/3.5 G ED VR Micro	526.95	\$100	426.95
10-24/3.5-4.5 G AF-S (770)			
12-24/4 G AF-S (770)			
16-85/3.5-5.6 G AF-S VR (670)			
17-55/2.8 G AF-S (770)			
18-55/3.5-5.6 G AF-S II (520)			
18-55/3.5-5.6 G AF-S VR (520)	196.95		
18-55/3.5-5.6 G AF-S VR II (520)	246.95		
18-105/3.5-5.6 G AF-S VR	396.95		
18-140/3.5-5.6 G AF-S VR **	496.95	\$200 **	296.95
18-200/3.5-5.6 G AF-S VR II	596.95		
18-300/3.5-5.6 G AF-S ED VR (770)	996.95		
18-300/3.5-6.3 G AF-S ED VR (670)	896.95		
55-200/4-5.6 G AF-S (520)			
55-200/4-5.6 G AF-S VR II	346.95	\$250	96.95
55-300/4.5-5.6 G AF-S VR	396.95	\$150	246.95

D-Type AF Lenses	Price	Rebate	Final
14/2.8 D ED			
16/2.8 D (390) with Hood			
20/2.8 D (620)			
20/1.8 G AF-S ED (770)	796.95		
24/2.8 D (520)			
24/1.4 G AF-S ED (770)			
24/3.5 D ED PC-E (770)			
28/1.8 G AF-S (670)	696.95		
28/2.8 D (520)			
35/2.0 D (520)			
35/1.4 G AF-S ED (670)			
35/1.8 G AF-S ED (580)	596.95		
45/2.8 D ED PC-E Micro (770)			



D-Type AF Lenses	Price	Rebate	Final
50/1.8 D (520)			
50/1.8 G AF-S (580)	216.95		
50/1.4 D (520)			
50/1.4 G AF-S (580)			
58/1.4 G AF-S (720)	1,696.95		
60/2.8 D Micro (620) (1:1)			
60/2.8 G AF-S ED Micro (620)			
85/1.8 G AF-S (670)	496.95		
85/1.4 G AF-S (770)			
85/2.8 PC-E Micro (770)			
105/2.8 G AF-S ED-IF VR Micro (620)			
105/2.0 DC D with Hood (720)			
180/2.8 D ED-IF (720)			
200/4 D ED-IF Micro with Case (620)			
200/2 G AF-S ED-IF VR II (520)			
300/4.0 D AF-S ED-IF (770)			
300/2.8 G AF-S VR (520-R)			
500/4.0 G AF-S VR ED (520)			
600/4.0 G AF-S VR ED (520)			
14-24/2.8 G AF-S ED-IF	1,996.95		
16-35/4.0 G AF-S ED VR (770)	1,256.95		
17-35/2.8 D AF-S ED-IF (770)			
18-35/3.5-4.5 AF-S G ED (770)	746.95		
24-70/2.8 G AF-S ED-IF (770)	1,886.95		
24-85/2.8-4.0 D IF (720)			
24-85/3.5-4.5 G AF-S ED VR	596.95	\$100	496.95
24-120/4.0 G AF-S ED VR (770)	1,296.95		
28-300/3.5-5.6 G AF-S ED VR	1,046.95	\$250	796.95^
70-200/4.0 G AF-S ED VR (670)	1,396.95		
70-200/2.8 G AF-S ED-IF VR II (770)	2,396.95		
70-300/4.0-5.6 G (620)			
70-300/4.5-5.6 G-AFS VR	586.95	\$200	386.95
80-200/2.8 D with Collar (770)			
80-400/4.5-5.6 G AF-S ED VR (770)	2,696.95		
200-400/4 G AF-S ED VR II (520)			
TC-14E III (1.4x) Teleconverter	499.95		
TC-17E II (1.7x) Teleconverter			
TC-20E III (2x) Teleconverter			

** When purchased with a D3300, D5300, D5500, D7100, D7200

^ When Purchased with D7100, D7200, D610, D750, DF, D810, D4s



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12 Mega Pixels

Nikon Coolpix L840

- 3.0" Tilting LCD • Built-In Wi-Fi
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- Full HD 1080p Video at up to 30 fps
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16 Mega Pixels

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- Waterproof to 50' • Crushproof to 220 lb
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- 5x Optical Zoom f/3.5-5.7 Lens
- 3.0" 180° Flip LCD • Built-In Wi-Fi
- SDHC/SDXC Card Slot
- Full HD 1080 Video at 60 fps

Black, Orange or White #OLTG860*



16 Mega Pixels

Panasonic Lumix DMC-LX100

- 4K Ultra HD Video at 30/24 fps in MP4
- Full HD Video at 60fps in MP4 or AVCHD
- 3.0" LCD • SDHC/SDXC Card Slot
- Full HD 1080 Video Recording
- Leica DC Vario-Summilux f/1.7-2.8 Lens
- Built-in Wi-Fi • External Flash Included

Black or Silver #PADMLX100*



12 Mega Pixels

SONY CyberShot DSC-RX100 III

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- MS Pro Duo/Pro HG-Duo, SDHC/SDXC Card Slot
- Full HD Video • Built-In Wi-Fi with NFC

#SDSCRX100M3



20 Mega Pixels

▶ MEMORY CARDS

CF Compact Flash

	Delkin				Kingston		Lexar		Sandisk		
	500x	700x	1000x	1050x	Ultimate 266x	Ultimate 600x	800x	1066x	Ultra 50MBs	Extreme 120MBs	Extreme Pro 160MBs
16GB	29.95	34.95	49.95	—	18.99	28.95	38.80	48.95	20.95	37.95	49.95
32GB	42.95	49.95	64.95	79.95	28.95	44.95	51.97	78.45	32.95	49.95	65.99
64GB	84.50	72.50	99.95	159.95	49.95	—	72.95	124.00	—	74.95	129.95
128GB	—	184.95	214.00	254.95	—	—	181.14	269.95	—	164.99	249.95
256GB	—	—	—	—	—	—	399.95	543.91	—	—	529.99
512GB	—	—	—	—	—	—	879.99	—	—	—	—

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	Lexar Professional 1333x	Sony N Series 125MBs	G Series 400MBs
32GB	92.79	99.95	163.50
64GB	137.02	189.95	359.95

SDHC Secure Digital High Capacity

	Delkin Pro Class10	Kingston Micro Class 10 Mobility	Sandisk	
			Standard Class 4	Micro Class 4
4GB	7.95	—	4.95	4.95
8GB	9.95	7.95	5.95	5.95
16GB	10.95	9.95	8.95	8.95
32GB	16.95	17.95	15.95	16.95

UHS1 Ultra High Speed

	Lexar		Sandisk		Sony		Delkin	Kingston	Lexar	Sandisk	Sony	Delkin	Lexar	Sandisk
	Platinum 300x	Micro 633x	Extreme 80MBs	Micro 80MBs	Class 10 94MBs	Micro	633x 90MBs	633x 95MBs	Extreme 60MBs	Extreme Pro 95MBs	95MBs	U3 280MBs	1000x 150MBs	Extreme Pro 280MBs
SDHC	8GB	7.95	19.15	—	11.66	7.75	17.95	—	—	—	—	—	—	—
	16GB	10.95	23.95	24.95	17.95	8.99	31.95	21.46	—	14.65	—	64.95	18.30	49.95
	32GB	18.95	34.95	37.95	34.95	24.95	35.95	28.95	20.29	22.95	36.95	114.95	28.95	74.95
SDXC	64GB	32.03	66.50	64.95	39.95	32.95	74.95	49.95	37.37	44.95	59.99	69.95	44.95	129.95
	128GB	56.95	—	137.95	—	76.00	149.95	—	69.41	—	109.95	—	87.95	—
	256GB	—	—	—	—	—	359.95	—	128.15	—	227.95	—	168.50	—
	512GB	—	—	—	—	—	—	—	—	499.95	—	—	—	—

Note: Not all devices support SDXC cards

UHS1 Speed Class 3 (U3)

UHS2

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Model	Ball Head	Load Capacity	Max. Height	Folded	Weight	SKU #	Price
Anodized Aluminum Tripods							
AT-3421	BA-106T	6.6 lb	59"	16.8"	2.7 lb	#OBAT3421106T	\$159.95
AT-3431	BA-108T	8.8 lb	61.3"	17.3"	2.8 lb	#OBAT3431108T	\$199.95
AT-3441	BA-111T	11 lb	63.4"	17.5"	3.5 lb	#OBAT3441111T	\$249.95
AT-3451	BA-113T	13.2 lb	65.5"	18.1"	3.8 lb	#OBAT3451113T	\$289.95
AT-3461	BA-117T	17.6 lb	67.1"	18.9"	4.5 lb	#OBAT3461117T	\$299.95
6x Carbon Fiber Tripods							
CT-3431	BE-108T	8.8 lb	59.5"	17"	2.5 lb	#OBCT3431108T	\$269.95
CT-3451	BE-113T	13.2 lb	61.3"	17.1"	2.5 lb	#OBCT3451113T	\$289.95
CT-3461	BE-117T	17.6 lb	64.5"	17.4"	3.1 lb	#OBCT3461117T	\$349.95
CT-3481	BE-126T	26.4 lb	68"	18.9"	3.8 lb	#OBCT3481126T	\$369.95
CT-3521	BE-106T	6.6 lb	56.4"	14.8"	2.4 lb	#OBCT3521106T	\$259.95
CT-3531	BE-108T	8.8 lb	60.8"	15.5"	2.5 lb	#OBCT3531108T	\$279.95
CT-3551	BE-113T	13.2 lb	62.4"	16"	2.6 lb	#OBCT3551113T	\$299.95
CT-3561	BE-117T	17.6 lb	64.3"	16.8"	3.1 lb	#OBCT3561117T	\$359.95
CT-3581	BE-126T	26.4 lb	67.9"	16.9"	3.9 lb	#OBCT3581126T	\$379.95



BATTERY GRIPS

- Accepts 2 lithium-ion batteries to effectively double the camera's battery life (Batteries not included)
- The included AA battery holder allows you to use 6 AA batteries for added convenience (except BG-N3)
- Alternate shutter release button, main and sub command dials, and an AE-L/AF-L button are provided to facilitate shooting in a vertical orientation

for Canon 5D Mark III	BG-C9	#VEBGC9.....	\$99.95
for Canon 5D Mark II	BG-C2	#VEBGC22	\$69.95
for Canon 7D	BG-C4	#VEBGC4.....	\$64.95
for Canon 70D	BG-C10	#VEBGC10	\$84.95
for Canon 60D	BG-C6	#VEBGC6.....	\$69.95
for Canon T5i, T4i, T3i, T2i	BG-C5.2	#VEBGC52	\$67.95
for Nikon D7100	BG-N11	#VEBGN11	\$89.95
for Nikon D5300	BG-N13	#VEBGN13	\$59.95
for Nikon D3300, D3200	BG-N12	#VEBGN12	\$59.95
for Nikon D600, D610	BG-N10	#VEBGN10	\$79.95
for Nikon D800, D800E	BG-N7	#VEBGN7	\$89.95

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UV, Skylight (1B) Super HMC	27.89	26.49	33.00	52.95	44.99
Linear Polarizer	16.99	25.00	38.85	36.85	44.90
Circular Polarizer	23.95	29.95	34.95	42.95	38.90
Circular Polarizer HMC	39.95	49.00	55.90	69.00	104.90
"Moose" Warm Circular Polarizer	35.75	39.55	53.90	55.65	91.50
K2 Yel, X0 Yel/Gm, Gm X1, Or G, Red 25A HMC	23.95	28.35	41.95	46.35	60.90
Close-Up Set (+1, +2, +4)	39.99	47.35	53.00	63.00	68.00
Close-Up Set HMC (+1, +2, +4)	52.68	64.88	73.00	100.68	145.35
Intensifier - Blue, Green Field, Enhancement (Red)	34.68	39.95	55.08	60.00	71.50
Neutral Density 2x, 4x, 8x HMC	23.88	19.95	36.95	30.99	34.80
Star 6, Star 8	16.89	22.50	43.35	49.90	46.68

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	55mm	58mm	67mm	72mm	77mm
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Skylight (1B), UV SH-PMC	72.99	78.99	103.99	131.99	157.99
Circular Polarizer, Slim Circular Polarizer	115.99	121.99	151.99	180.99	195.99
Circular Polarizer SH-PMC, Slim Circ. Pol. SH-PMC	161.99	171.99	214.99	242.99	275.99
#5, #8, #11, #13, #15, #22, 81A, 81B, 81C	49.99	51.99	78.99	96.99	108.99
Digital Filter	176.99	180.99	222.99	261.99	301.99

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CZ 800 135-24.....	3.99	
Pro	400H 135-36.....	10.29
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Kodak

Ektar	100 135-36.....	7.99
	100 120 Roll.....	5.59
Portra	160 135-36.....	7.99
	160 120 Roll.....	6.39
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	400 135-36.....	8.59
	400 120 Roll.....	6.99
	400 220 Roll.....	14.95
	400 220 PP (5).....	74.75
Gold Max	800 135-36.....	10.99
	800 120 Roll.....	11.39

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	135-36PP (5).....	49.75
	RDP 100F 120 Roll.....	7.19
	135-36PP (5).....	35.95
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	Pro 50 120 Roll.....	8.55
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36 Exposures (35mm).....		10.59

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UV Haze MRC 010M	35.50	31.50	36.30	42.90	49.89	71.75
Circular Polarizer SC	83.95	85.95	83.50	80.00	73.95	99.00
Circular Polarizer MRC	78.00	87.53	82.50	109.99	89.99	119.99
Circular Polarizer Slim	56.95	49.99	68.00	69.99	59.99	80.00
Skylight KR1.5 (1A)	24.50	25.95	31.95	38.95	42.00	53.95
Digital Pro UV MC	41.95	41.95	44.00	—	—	—
Graduated (N.D. & Colors)	99.95	106.95	99.50	109.50	142.50	152.95
Neutral Density 106	56.00	60.95	97.95	105.95	121.95	137.95
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Grad ND 0.6	74.95	63.95	82.90	119.95	139.95
Circular Polarizer	74.10	89.95	119.90	129.95	199.99
Ultra Clear	34.95	38.95	45.95	54.95	54.95
Haze 86	38.95	47.95	56.90	64.95	99.95
ND 1.2	41.50	56.95	74.90	109.95	129.95
ND 0.6	48.95	50.95	69.95	99.95	119.95
Soft FX3	56.95	63.95	82.90	119.95	139.95
Star 4 pt 2	64.95	56.95	74.90	109.95	129.95



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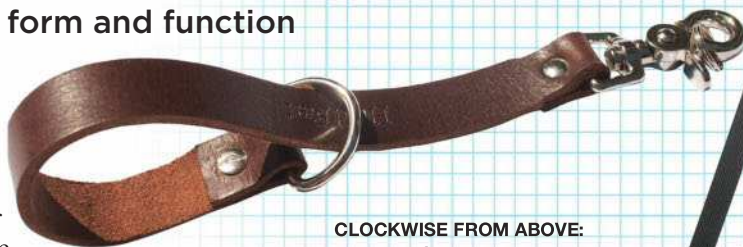
Camera straps have grown up to offer a higher level of both form and function

Every camera comes with some sort of a perfectly functional strap, and because it usually has the name and model number of the camera it came with, the strap can also serve as a status badge. If you'd like a little more function than that basic strap, you have some options that are both highly functional and stylish, as well.

BlackRapid has made a name for themselves with strap systems that securely connect to the camera's 1/4-20 tripod thread. The camera sits at your hip in a natural position so that when you reach down, you're automatically holding it so it's ready to shoot. Most of BlackRapid's various shoulder straps are contoured to be worn across your body, which is both comfortable and much more secure than just slinging on your shoulder. BlackRapid makes several models to fit your shooting style. Thinner, less obtrusive straps like the Curve, Metro, Shot and Cross Shot are good for travel and urban shooting. The Yeti's double-camera/single-strap setup is ideal for sports photographers and photojournalists who need two body/lens combinations ready at all times. The Kick is optimized for women, and the Sport is built for active shooters and is excellent for day hikes. www.blackrapid.com

OP/TECH USA neoprene straps have been favorites with many nature photographers for years. Available in various colors and widths, the neoprene OP/TECH models give you a little shock absorption, which makes them very comfortable when hiking on jarring terrain or anytime you have heavier gear. OP/TECH has a vast collection of products, each with a clearly defined purpose. optechusa.com

HoldFast is a relatively new player in the strap world, and they've made a name for themselves with leather and



CLOCKWISE FROM ABOVE:
HoldFast Camera Leash;
BlackRapid Yeti; Capturing
Couture; HoldFast MoneyMaker



canvas construction. Of the various models, HoldFast offers shoulder straps, neck straps, harnesses and wrist leashes. The MoneyMaker is their dual-camera harness system that attaches via the camera's tripod thread. HoldFast employs a shackle system that allows you to unhook from the strap quickly. For security, there's a safety system that prevents the camera from falling should you accidentally disengage the shackle.

HoldFast's Camera Leash is a leather wrist strap with a similar 1/4-20 and shackle attachment system as the MoneyMaker. It's a nice option if you just don't want to deal with a shoulder-strap system or harness of any kind. Any photographer looking for a more natural material should spend some time looking into HoldFast. holdfastgear.com

ing decidedly retro, there are a lot of design options in their product line. www.capturingcouture.com

Like Capturing Couture, mod makes a line of retro-looking, stylish neck straps in a variety of designs. If the simple design that came with your camera makes your fashionista skin crawl, look into mod for something that coordinates a little better with your aesthetic requirements. www.modstraps.com

Also playing in the more fashion-oriented space is !MoStrap. Their line of neck straps is available in myriad patterns, including a leopard pattern. !MoStrap also makes neoprene straps that feature a more sedate look and plenty of all-weather function. One feature we don't like about many of !MoStrap's models is their quick-release buckle system. Quick releases have a tendency to release, well, quickly, and there's no safety system. www.iMoStrap.com or

Fashion Camera Straps

Capturing Couture is a relatively new player in the camera strap world. If you were a photographer in the 1970s or you remember your parents' 1970s-era camera straps, much of the Capturing Couture line will look familiar. Look-



LensCoat®

"We've Got You Covered"

LensCoat makes unique, protective covers for camera lenses, bodies, and accessories. Made from 100% closed-cell neoprene, LensCoat products protect your gear from bumps and scratches, they keep rain and mist away from sensitive equipment, and they also insulate your hands from cold equipment.

Lens Covers

- Available with a custom fit for most popular lenses
- Clear, flexible window over the AF/IS/VR controls and the distance-scale window.
- Custom holes that reveal the red-dot for easy alignment to the camera body without removing the cover.
- Also available in white for Canon lenses



Hoodie Lens Caps

- Fits snugly around your lens hood or shade
- Features a reinforced removable front protection disc
- Available in 9 colors

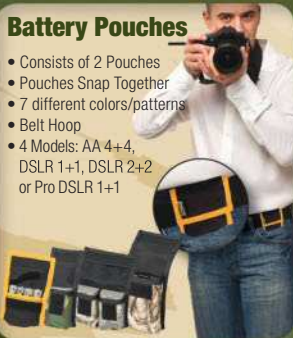


X-Small ..2.75" to 3.25"
Small3.25" to 3.75"
Medium3.75" to 4.25"
Large4.25" to 4.75"
X-Large ..4.75" to 5.25"

2X-Large ..5.5" to 6.25"
3X-Large6.25" to 7"
4X-Large7" to 7.75"

Battery Pouches

- Consists of 2 Pouches
- Pouches Snap Together
- 7 different colors/patterns
- Belt Hoop
- 4 Models: AA 4+4, DSLR 1+1, DSLR 2+2 or Pro DSLR 1+1



LegCoat Wraps (set of 3)

- Wrap around the upper leg of your tripod
- Tightly grips to your tripod so they will not slide



Memory Wallets

- Lightweight waterproof
- Easy clip on tether
- 7 different colors/patterns
- 6 designs: CF6/10, SD9/15, Combo 43/66



Xpandable Series — Long Lens Bags

This is one smart bag. Whether you're in the field or a safari vehicle it's perfect when you want to be ready to take the shot at a moment's notice. The Xpandable bag can be ingeniously folded to three different sizes – or folded flat!

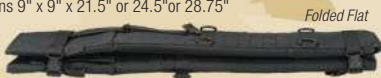
- Removable lid with pocket zips on easily & securely at all three positions
- Male and female ends on removable shoulder strap allow for strap to be used to secure bag
- Removable reinforced insert panels allow you to configure the weight and support
- Removable harness (sold separately)
- Multiple connection points to secure the bag
- Built to last with heavy-duty water-resistant Cordura and lightweight, water-resistant nylon lining
- Soft sided construction allow the bag to be folded nearly flat
- M.O.L.L.E. webbing system to easily add pouches & accessories
- Expandable exterior mesh pocket
- Available in Black, Digital Camo, Forest Green Camo, or Realtree Max4 • Made in the USA



Shown with optional harness

3Xpandable Internal dimensions 8" x 8" x 19.75" or 23.5" or 27.75"
Accommodates camera body with lenses such as Canon 200-400mm, 300mm f/2.8, 400mm DO, 500mm, Nikon 200-400mm, 300 f/2.8, 500mm, Sigma 500mm, 300-800mm, Sony 500mm

4Xpandable Internal dimensions 9" x 9" x 21.5" or 24.5" or 28.75"
Accommodates camera body and lens such as Canon & Nikon 400mm f/2.8, 500mm, 600mm, 800mm



Folded Flat

RainCoat 2

The LensCoat® RainCoat 2 has all same great features as the original RainCoat but adds an additional integrated pocket with foldaway arm sleeve on the left side.

Pro 30.5" 11.6oz
(hood extension for 600mm & 800mm 8" 2.4oz)
Standard 20.5" 9.4oz



Pro

Other Innovations from LensCoat®

- Gimbal Pouch • CB Gimbal Pouch • Manfrotto 393 Gimbal Pouch
- RRS PG Pouch • BeamerKeeper • FilterPouch 2 • FilterPouch 8
- TravelCoat • LensPouches • FlashKeeper • iPad Sleeve • LegCoat Wraps

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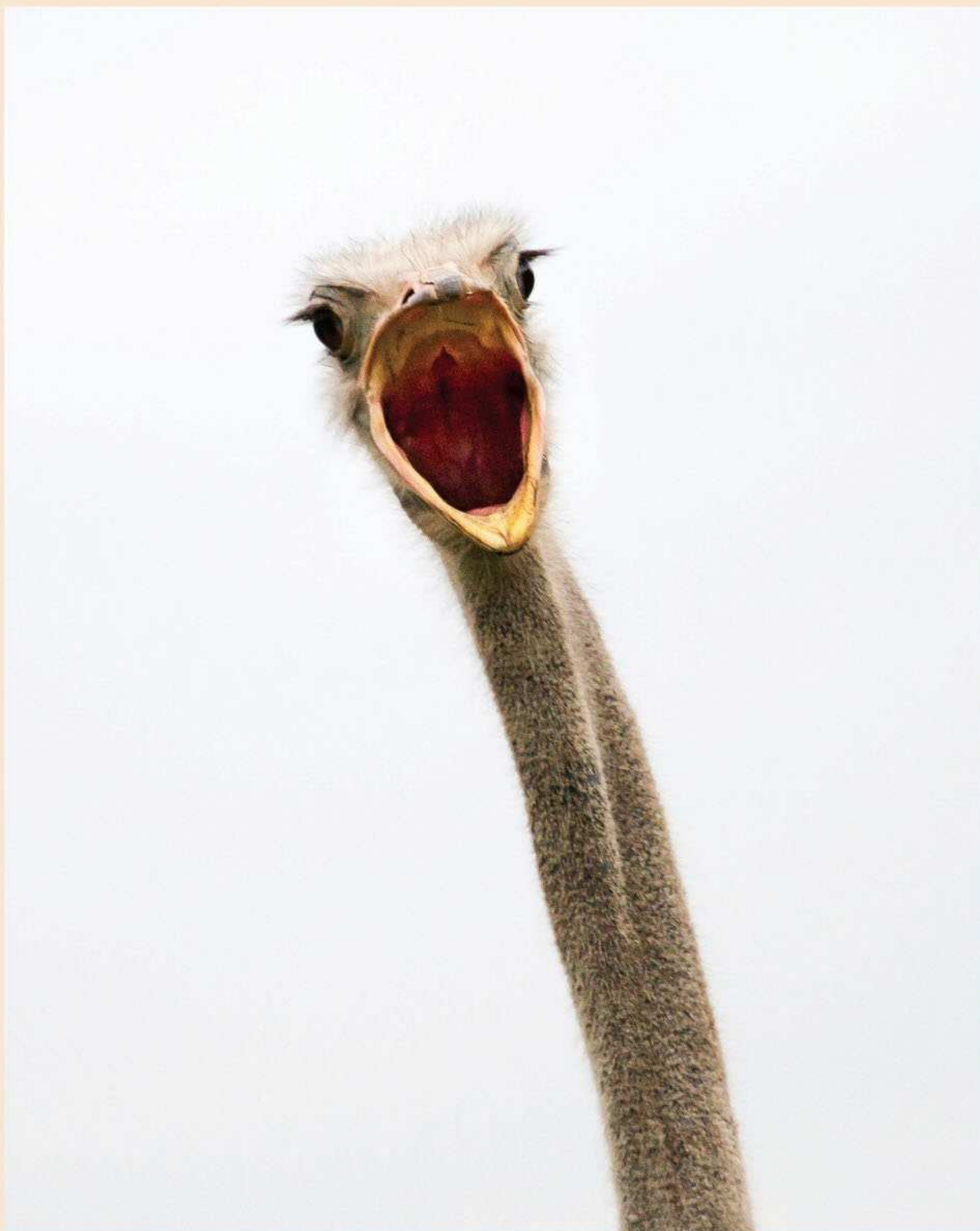
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Big Bird

Cabárceno Wildlife Park in northern Spain was designed for the conservation of endangered species and provides semi-free conditions for the animals that live there. The park hosts 100 animal species from five continents, including the world's largest bird, the ostrich. The wild ostrich population has been in drastic decline over the last 200 years, and most

surviving birds can be found in wildlife parks like this one or on farms. When she's not leading safaris in Africa, Marina Cano offers wildlife photography workshops in the park, where she managed to catch up to one of these speedy birds, who wasn't exactly ready for her close-up. To see more of Marina Cano's work, visit www.marinacano.com.

The moment when you no longer
take pictures, you make them.
This is the moment we work for.

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Carl Zeiss SLR lenses

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www.zeiss.com/photo/freedom



We make it visible.

FUJIFILM

X-T1



Photo © 2015 Jack Graham | FUJIFILM X-T1 Camera and XF18-55mm Lens, at 1/3000 seconds at F4.5, ISO 2000.

Do things with
Passion...
or not at all.



Using the FUJIFILM X-T1 camera has reinvigorated me. Its simplicity and ability to deliver professional quality images lets me worry about photography, not dials and menus! I feel comfortable shooting at high ISO's knowing any digital noise is going to be minimal. I have total confidence that the X-T1 and great FUJINON glass will deliver the images I expect in the toughest conditions.

-Jack Graham



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